Электронное реле давления/вакуума

PS1000/1100

Предназначено для контроля давления сжатого воздуха.

- Компактная конструкция, небольшой вес (5 грамм без кабеля).
- 2-х проводное исполнение (возможно как PNP, так и NPN подключение).
- Простой монтаж с помощью быстроразъемного соединения.
- Широкий диапазон установки давления от -0.1 до 0.45 МПа.
- Встроенный Индикатор.

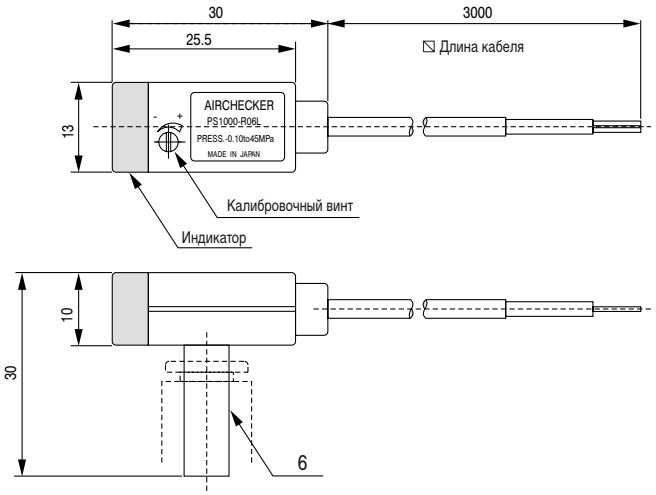
PS1000
для положительного давления

PS1100
для вакуума

Технические характеристики

Номер для заказа	PS1000-R06L	PS1100-R06L
Среда	Сжатый воздух	
Выход	ВКЛ, когда текущее давл. установленного уровня давления	ВКЛ, когда текущее давл. установленного уровня давления
Максимальное давление (МПа)	1.0	
Диапазон рабочих давлений (МПа)	- 0.1 ~ 0.45	- 0.1 ~ 0.4
Рабочая температура (С)	0 ~ 60	
Влияние температуры	± 3% (от полного диапазона)	
Воспроизводимость	± 1% (от полного диапазона)	
Гистерезис	4% (от полного диапазона)	
Напряжение питания	12 ~ 24V DC (колебания напряжения 10%)	
Ток нагрузки (мА)	5 ~ 50	
Ток утечки (мА)	1	
Внутр. падение напряжения (В)	5	
Напряжение пробоя изоляции	Между любым контактом и корпусом не хуже 1000V AC, 50/60 Гц в течение 1 мин.	
Сопротивление изоляции	Между любым контактом и корпусом 2 МОм (при 500V DC)	
Устойчивость к вибрации	10 ~ 500 Гц с амплитудой до 1.5 мм с ускорением 98 м/с^2 и с малыми амплитудами в трех измерениях длительностью до 2 часов	
Устойчивость к ударам	Допускается 980 м/с^2 в трех измерениях, не более 3 раз в каждом	
Присоединение	Переходник под быстроразъемное соединение 6	
Степень защиты	IP40	
Кабель	Маслостойкий 2-х проводной кабель 2.55, сечение жил 0.184мм^2, длина 3м	
Индикация	Зеленый светодиод загорается при активизации выхода	
Вес (г)	5 (без кабеля)	

Размеры

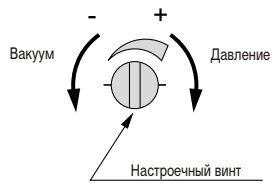


Электронное реле давления/вакуума
PS1000/1100

Настройка и подключение

Калибровка датчика

- Используйте калибровочный винт для установки давления
- Поверните по часовой стрелке для увеличения давления срабатывания



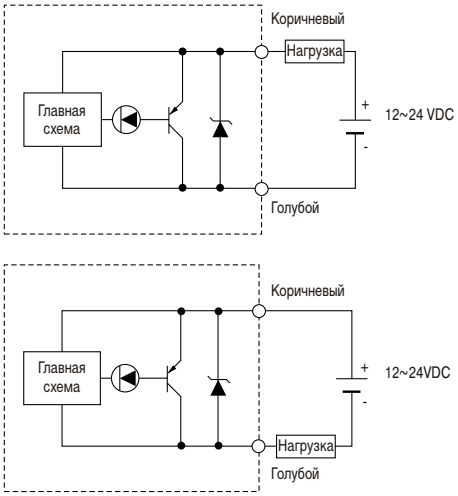
Настроечный винт (триммер)

Угол поворота триммера 220°
Специальный стопор препятствует повороту винта дальше установленного предела. Поворот дальше стопора может привести к повреждению винта.

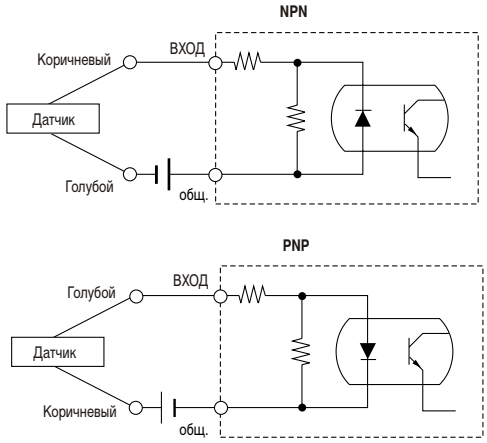
Характеристики датчика

Внутренняя схема/подключение

Схема подключения



Пример подключения к контроллеру



Compact Pressure Switch

Series ZSE1

(For vacuum)

ISE1

(For positive pressure)

For General Pneumatics

Can be integrated with ZM vacuum system.

Quick response

10mS

High accuracy

± 3% F.S. (Full Span)

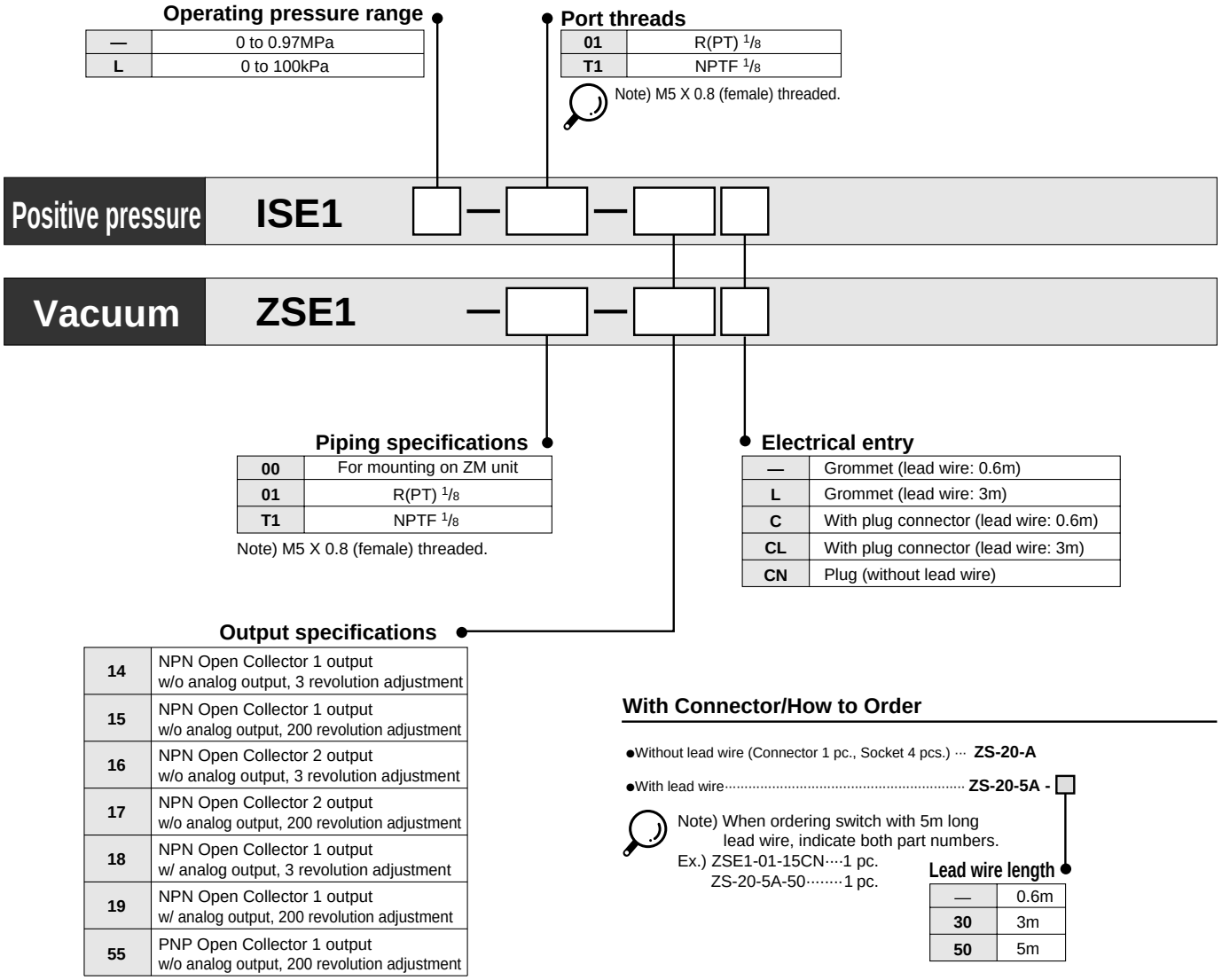
Adjustable hysteresis

1 to 10% of set pressure

Easy and simple wiring

Connector style

How to Order



With Connector/How to Order

●Without lead wire (Connector 1 pc., Socket 4 pcs.) ··· **ZS-20-A**

●With lead wire····· **ZS-20-5A -** □

Note) When ordering switch with 5m long lead wire, indicate both part numbers.
Ex.) ZSE1-01-15CN····1 pc.
ZS-20-5A-50·····1 pc.

Lead wire length

—	0.6m
30	3m
50	5m

ZSE1/ISE1 Specifications

Model		ZSE1	ISE1L	ISE1
Operating pressure range		–101kPa to 0	0 to 100kPa	0 to 1MPa
Max. pressure		200kPa		1MPa
Temperature characteristics		± 3% F.S.		
Power supply		12 to 24V DC (Ripple ±10% or less)		
Current consumption		17mA or less at 24V DC 2 output: 25mA or less at 24V DC		
Port size		01: R(PT)1/8, M5 X 0.8 T1: NPTF1/8, M5 X 0.8 00: ZM ejector mounted style		
Operating temperature range		0 to 60°C (No condensation)		
Lead wire	Grommet	Grommet oil resistant vinyl cabtire code –14, –15, –55: ø3.4, 0.2 mm² – 16, –17, –18, –19: ø3.5, 0.14 mm²		
	Plug connector	Heat resistant electrical wire ø1.55, 0.31 mm²		

∗There is no influence on switch even if 0.5MPa of vacuum pressure is supplied instantly to the switch in vacuum use.

Output Specifications

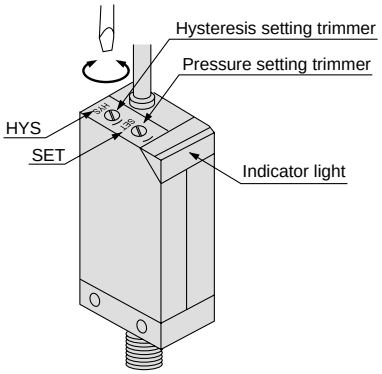
Model	–14	–15	–16	–17	–18	–19	–55
Output method	NPN Open Collector 30V, 80mA						PNP Open Collector ≤ 80mA
Hysteresis	1 to 10% of set press. (Variable)		3% F.S. or less (Fixed)		1 to 10% of set prss. (Variable)		1-10% of set press.
Analog output	None				1 to 5V		None
Number of outputs	1		2		1		
Indicator light	ON: when output is ON (Red)		ON: when output is ON(OUT1: Red, OUT2: Green)		ON: when output is ON (Red)		
Trimmer adjustment	3 revolutions	200	3 revolutions	200	3 revolutions	200	

How to Set Pressure

●Rotate SET potentiometer (trimmer) clockwise to increase (high vacuum pressure) the ON point. Do not apply excessive force when adjusting the trimmer with a screwdriver.

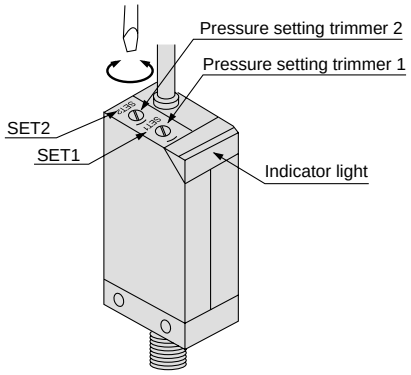
ZSE1-□□-14, -15, -18, -19

●Switches with variable hysteresis can be adjusted by means of the HYS potentiometer in the range 1 to 10% of the ON set point.
●Adjust ON setting, adjust hysteresis, and then re-adjust ON setting for best results.

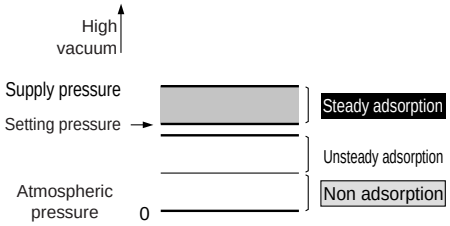


ZSE1-□□-16, -17

●For swich type "-16" or "-17", rotating SET1 will adjust ON setting for OUT1 (Black lead wire, Red LED) and SET2 will adjust ON setting for OUT2 (White lead wire, Green LED).



●Set the possible min. pressure for adsorption in case of the use for adsorption confirmation. If setting the pressure lower than that, switch becomes ON in case that adsorption is not completely done. If setting the pressure higher than that, switch does not become ON though absorbing workpieces in good matter.



●Regarding the pressure setting

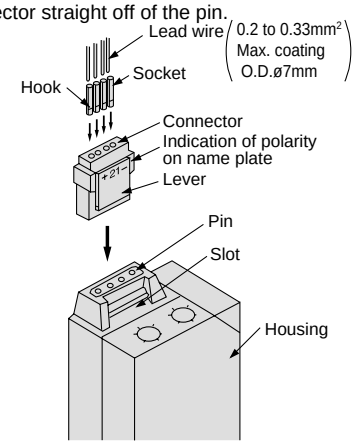
⚠ Caution

Observe the following precautions for setting the vacuum pressure: Use your fingertips to gently turn the screwdriver. Do not use a screwdriver with a large grip or with a tip that does not fit into the trimmer groove.

How to Use Connector

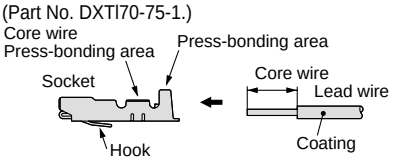
❶Connection

●When assembling the connector to the switch housing, push the connector straight onto the pins until the lever locks into the housing slot.
●When removing the connector from the switch housing, push the lever down to unlock it from the slot and then withdraw the connector straight off of the pin.



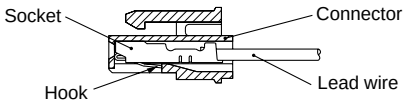
❷Press bonding socket to lead wire.

Strip the end of the lead wire 3.2 to 3.7mm long.
Put wire into socket taking care to prevent the lead wire insulation from entering the core wire pressure bonding area.
Press bond using press-bonding tool (Part No. DXTl70-75-1.)



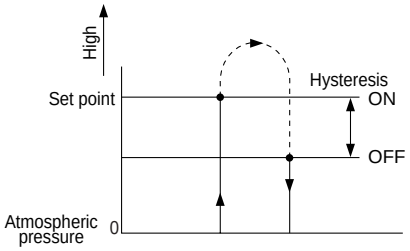
❸Assembly of socket to connector.

●Assembling
Push socket into hole in connector until the hook of the socket locks into the connector. (The socket hook will spring open inside the connector) Gently pull lead wire back to confirm that socket is locked in position.
●Disassembling
When disassembling socket from connector, push the hook of the socket down with a small dia. instrument. Pull socket out by means of the lead wire. If the socket is to be re-used, bend hook of the socket out to its original position before re-assembling.



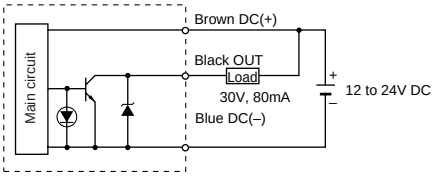
Hysteresis

Hysteresis is the pressure difference between the ON and the OFF pressure of the output signal. The set pressure is the pressure selected to switch from OFF to ON condition.

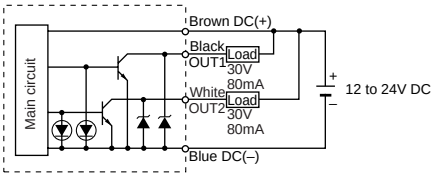


Internal Circuit and Wiring

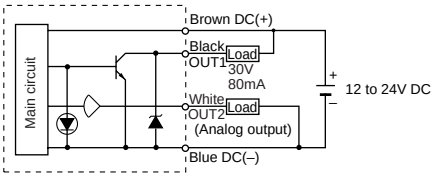
ZSE1-□-14, -15



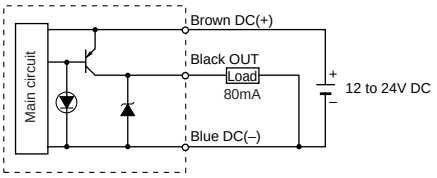
ZSE1-□-16, -17



ZSE1-□-18, -19



ZSE1-□-55

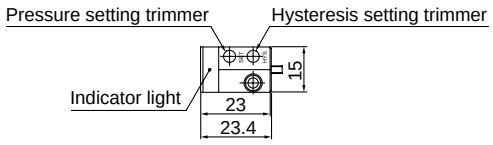


⚠Caution

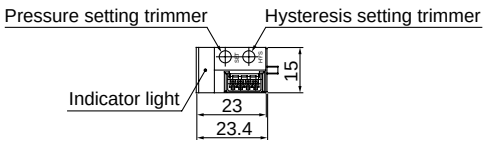
Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.3.0-7 to 3.0-9 for precautions on every sereis.

Dimensions

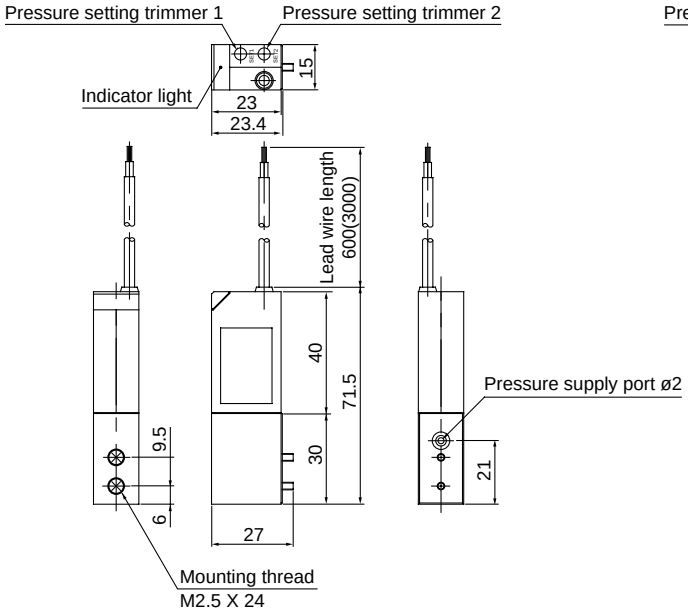
Grommet style
ZSE1-00 -14, -15, -18, -19



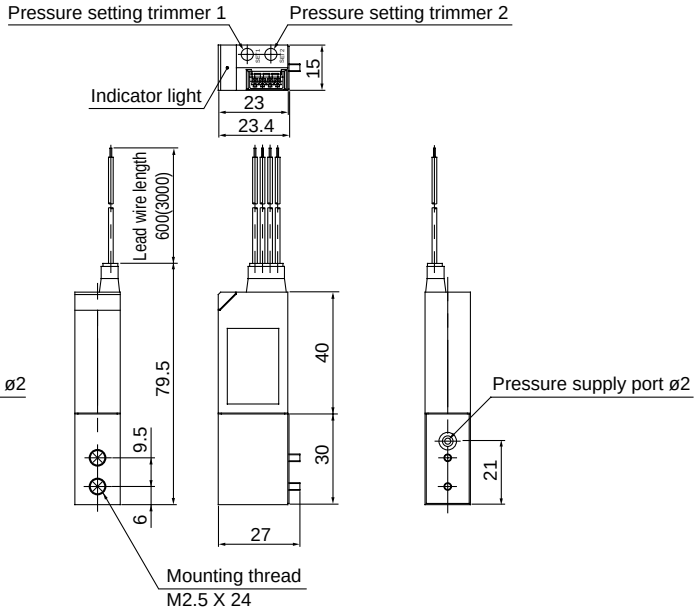
Connector style
ZSE1-00 -14C, -15C, -18C, -19C



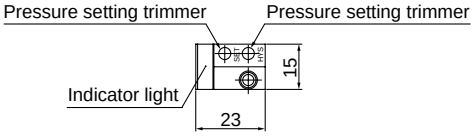
ZSE1-00 -16, -17



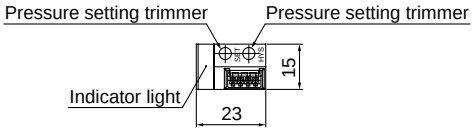
ZSE1-00 -16C, -17C



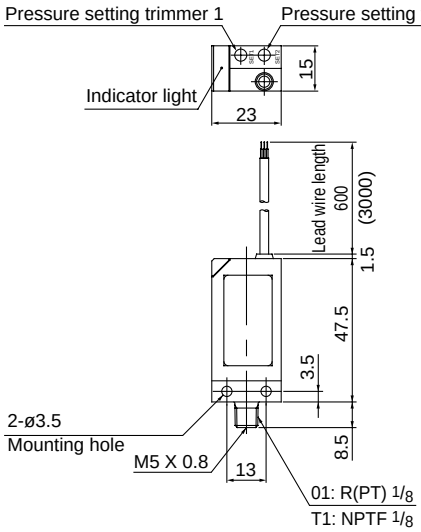
Grommet style
IZ SE1-01T1-14, -15, -18, -19



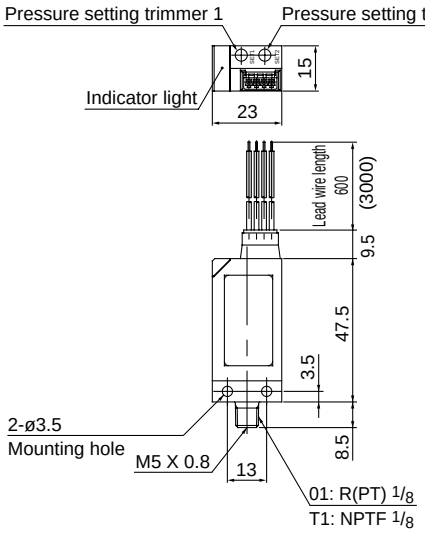
Connector style
IZ SE1-01T1-14C, -15C, -18C, -19C



IZ SE1-01 -16, -17



IZ SE1-01 -16C, -17C



ZSE40/ISE40

Предназначен для контроля уровня давления или вакуума в пневмосистеме

- Удобен в использовании и настройке имеет встроенный светодиодный индикатор (красный)
- Перенастраиваемые режимы включения-выключения выходного сигнала (окно либо гистерезис)
- Высокое разрешение - 0.001 МПа
- Высокое быстродействие - время реакции менее 2.5 мс
- 2 дискретных (PNP/NPN) выхода плюс аналоговый (1 ~ 5 V) выход
- Защита от скачков давления
- Автоподстройка под изменяющийся уровень первичного давления
- Данные калибровки хранятся в памяти датчика длительное время без подачи на него электрического питания
- Различные варианты крепления и подключения сжатого воздуха
- Степень защиты Ip65

Технические характеристики

Модель		ZSE40F	ZSE40	ISE40
Диапазон давлений		-100~100 кПа	0~-101.3 кПа	0~1.0 МПа
Испытательное давление		500 кПа		1.5 МПа
Наименьшая единица отображения	кПа	0.1		-
	МПа	-		0.001
	мм рт.ст.	1		-
	кгс/см^2	0.001		0.01
	psi	0.02	0.01	0.1
	бар	0.001		0.01
Рабочая среда		Сжатый воздух, нейтральные газы		
Время реакции (мс)		2.5[1] (400 Гц)		
Индикация		Зеленый светодиод загорается при активизации выхода 1 (OUT1)		
		Красный светодиод загорается при активизации выхода 2 (OUT2)		
Гистерезис	Режим гистерезиса	Регулируемый		
	Режим окна	Фиксированный (3 цифры младшего разряда)		
Воспроизводимость		±0.2% (от полного диапазона)		
Влияние температуры		В диапазоне 0~50°C ±2% (от полного диапазона)		
Напряжение питания		12~24V DC (колебания напряжения ±10%)		
Потребление тока (мА)		55		
Выход	Дискретный	2 выхода NPN или PNP, открытый коллектор, макс. 30V, 80мА, защита от к.з.		
	Аналоговый	1~5V ±5%(от полного диапазона), линейность ±1%, сопротивление нагрузки 1 кОм	1~5V ±2.5%(от полного диапазона), линейность ±1%, сопротивление нагрузки 1кОм	
Индикация давления		3+½ разряда на светодиодном дисплее (частота обновления 5 Гц)		
Точность индикации		±2% (от полного диапазона); ±1 единица младшего разряда(при 25°C)		
Диапазон температур (°C)	Рабочих	0~50		
	Хранения	-10~60		
Влияние температуры		В диапазоне 0~50°C ±2% (от полного диапазона)		
Вход автосдвига		Соединение с контактом DC (-)		
Напряжение пробоя изоляции		Между любым контактом и корпусом не хуже 1000V AC, 50/60 Гц в течение 1 мин.		
Сопротивление изоляции		Между любым контактом и корпусом 50 МОм (при 500V DC)		
Устойчивость к вибрации		10 ~ 500 Гц с амплитудой до 1.5 мм или с ускорением 98 м/с^2 и с малыми амплитудами в трех измерениях длительностью до 2 часов		
Устойчивость к ударам		Допускается 980 м/с^2 в трех измерениях, не более 3 раз в каждом		
Присоединительная резьба		R1/8 (внутренняя M5)		
Степень защиты[2]		IP65		
Вес (г)		60 (стандартное исполнение)		

[1] При использовании функции защиты от скачков давления может время реакции быть установлено по выбору 24, 192 либо 768 мс.
[2] При эксплуатации датчика в местах, где возможно попадание инородных частиц или воды в порт выпуска воздуха рекомендуется использовать трубку с внутренним диаметром 2.5 мм, например TU0425, для соединения порта с безопасной зоной. При этом необходимо избегать засорения или пережатия трубки, так как это приведет к погрешности в измерениях.

Принадлежности (заказываются отдельно)

Наименование	Номер для заказа
Крепежный угольник *	**ZS-24-B**
Комплект для крепления на панели *	**ZS-22-A**
Комплект для крепления на панели с защитным стеклом*	**ZS-24-C**

* Размеры см. в серии ZSE4/ISE4

Прецизионный датчик давления с цифровой индикацией
ZSE40/ISE40

Номер для заказа

Диапазон давлений

–	-0.100 ~ 1.000 MPa	Позитивное давление

Позитивное давление	ISE40	□	01	22	L
Вакуум /низкое давление	ZSE40	□	01	22	L

Диапазон давлений

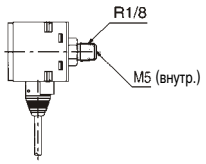
–	10 ~ -101.3 kPa	Вакуум
F	-100 ~ 100.0 kPa	Низкое давление

Выход

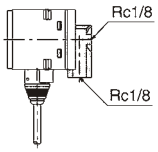
22	NPN (2 выхода)+ аналоговый выход (1-5V)
30	NPN (2 выхода)+ вход автосдвига
62	PNP (2 выхода)+ аналоговый выход (1-5V)
70	PNP (2 выхода)+ вход автосдвига

Исполнение

01: R1/8(M5 внутр.)

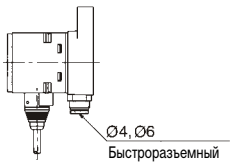


***W1:** R1/8(M5 внутр.)



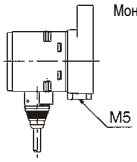
***C4:** 4
***C6:** 6

Монтаж на стене



***M5:** M5 0.8

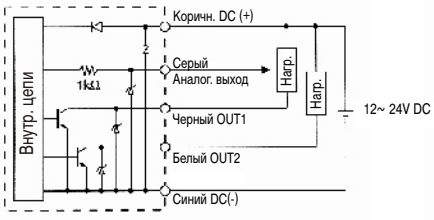
Монтаж на стене



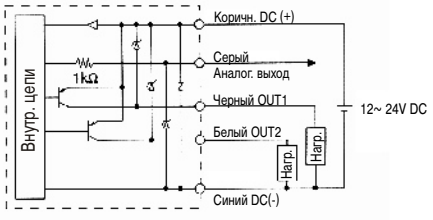
* Опция

Электрическая схема и схема подключений

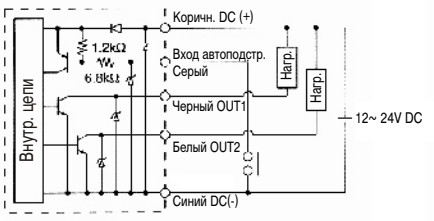
ZSE40 (F)
ISE40-□-22 (L)
Аналоговый выход



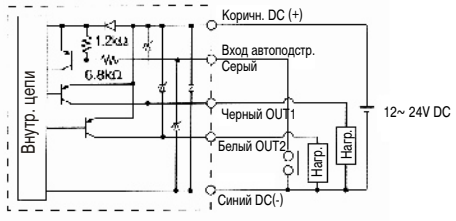
ZSE40 (F)
ISE40-□-62 (L)
Аналоговый выход



ZSE40 (F)
ISE40-□-30 (L)
Вход автосдвига

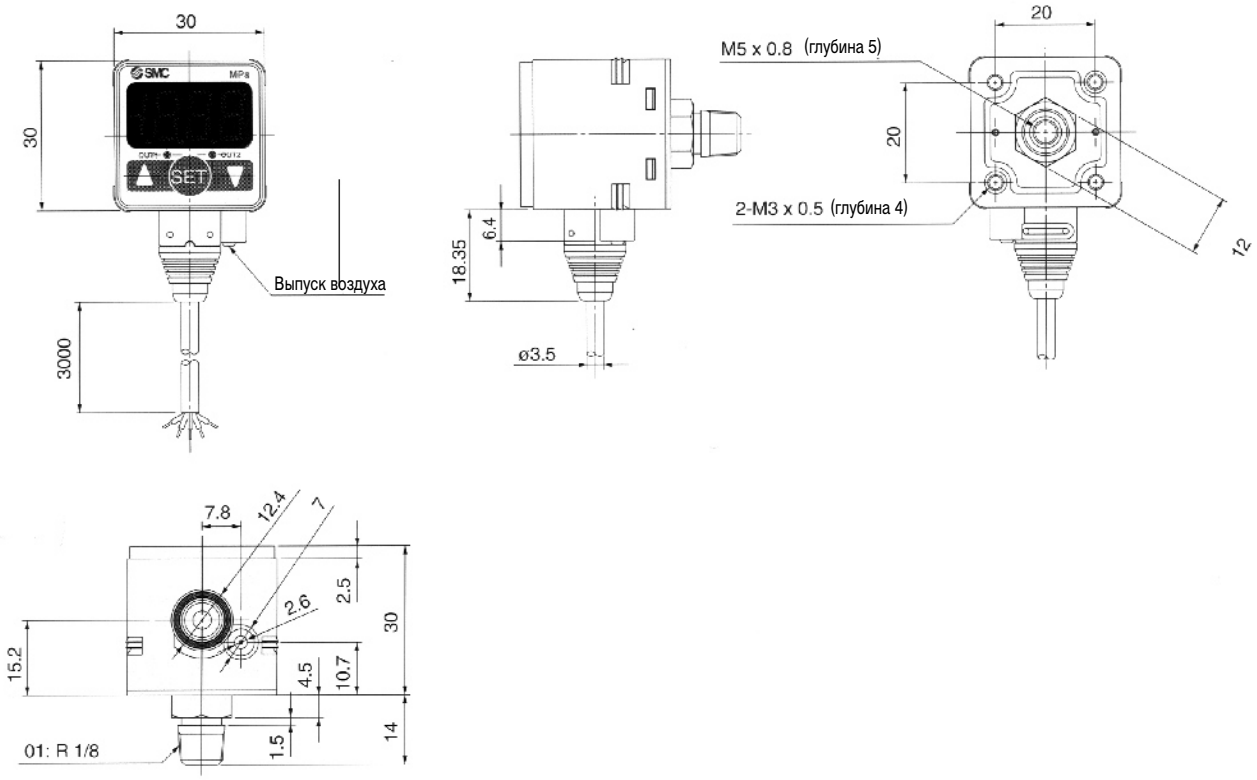


ZSE40 (F)
ISE40-□-70 (L)
Вход автосдвига

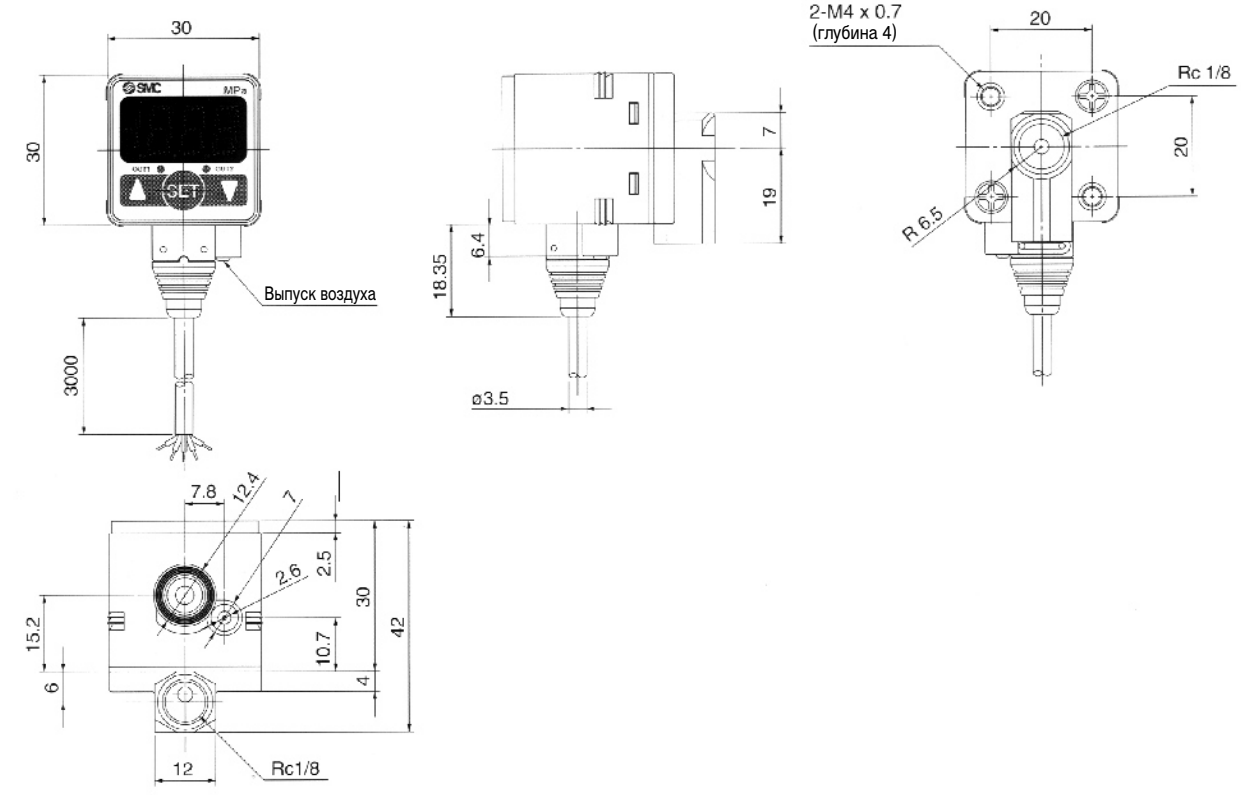


Размеры

ZSE40(F)/ISE40-01

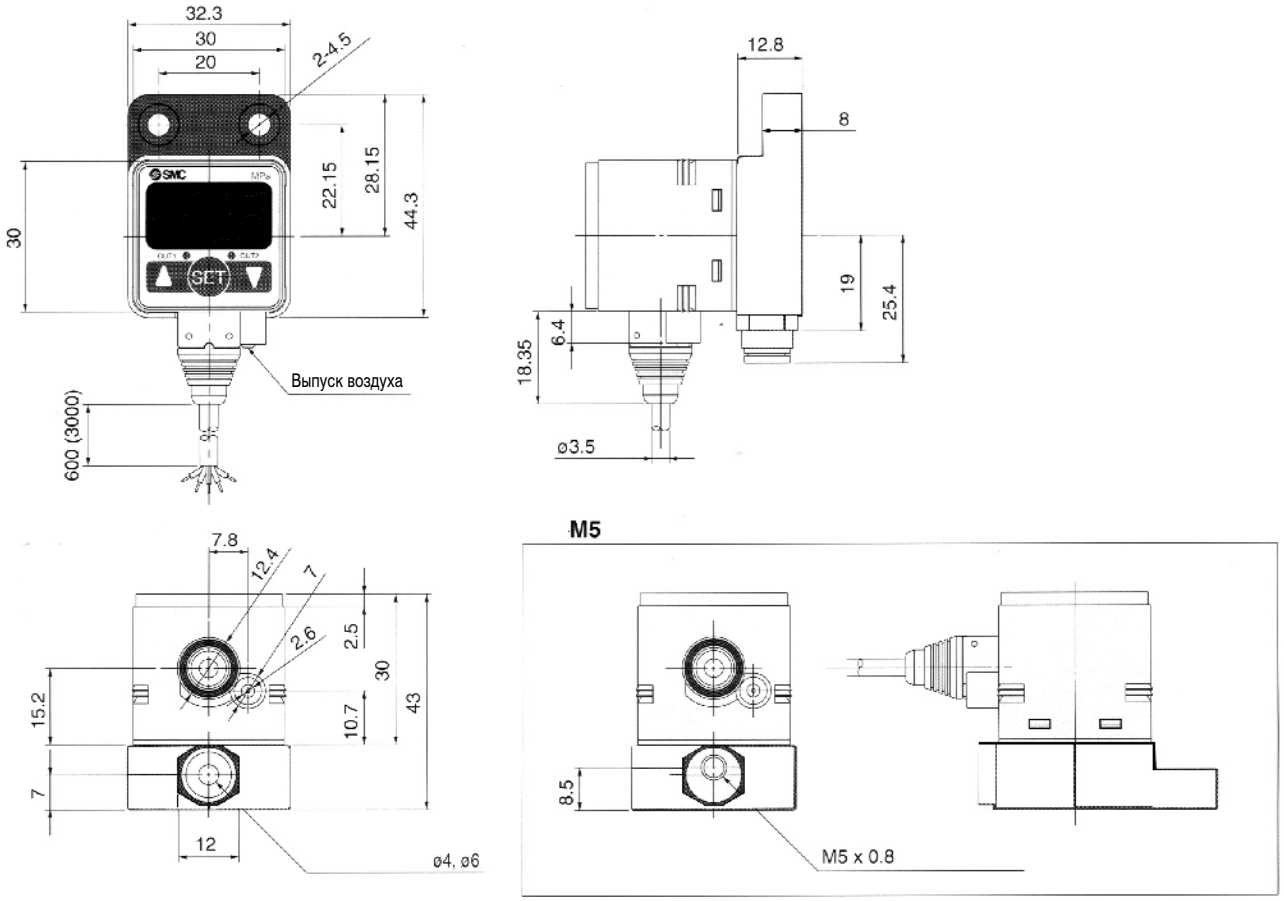


ZSE40(F)/ISE40-W1



Размеры

ZSE40(F)/ISE40 - C4 C6 M5



Вакуумный регулятор

ET203

Предназначен для регулирования вакуума
в линии между вакуумным насосом или эжектором и вакуумным оборудованием

Манометр
заказывается отдельно

Технические характеристики

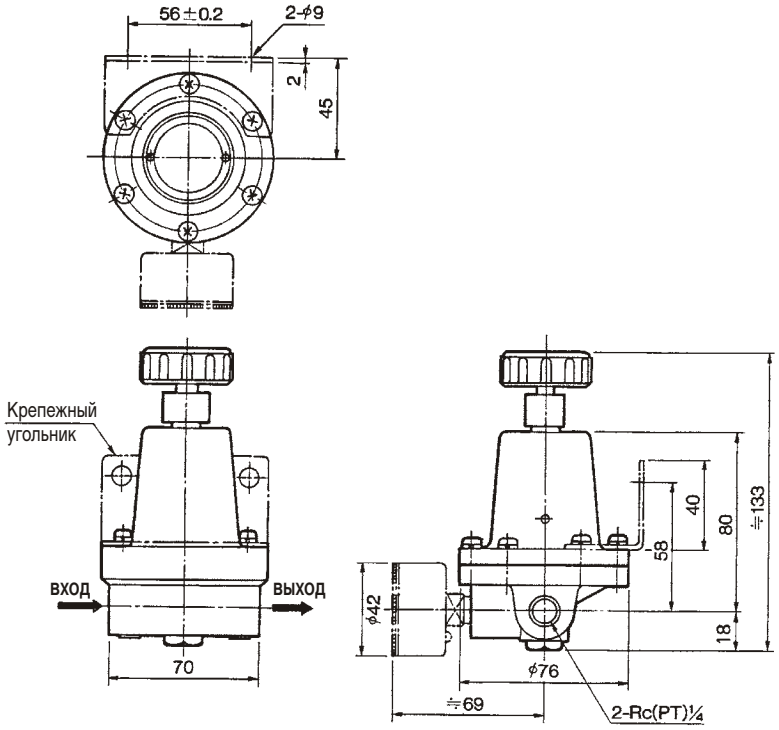
Номер для заказа	**ET203-1-F02**	**ET203-1-F03**
Рабочая среда	Очищенный сжатый воздух без содержания масла	
Присоединительная резьба	G1/4	G3/8
Диапазон регулирования (кПа)	-100~-1.3	
Воспроизводимость (кПа)	±0.39 *	
Точность настройки (кПа)	0.13	
Макс. расход вакуума (норм. Л/мин.)	120 *	
Резьба для присоед. манометра	1/4	
Диапазон рабочих температур (°C)	-5~+60	
Материал корпуса	Алюминиевый сплав	
Вес (кг)	0.51	

* величины могут изменяться в зависимости от условий эксплуатации

Принадлежности (заказываются отдельно)

Обозначение	**Номер для заказа**
Крепежный угольник	**230236**
Вакуумный манометр	**GZ46-K-02**

Размеры



IRV

G3/8 ~ G3/4

Вакуумный регулятор предназначен для регулирования вакуума
в линии между вакуумным насосом или эжектором и вакуумным оборудованием

Технические характеристики

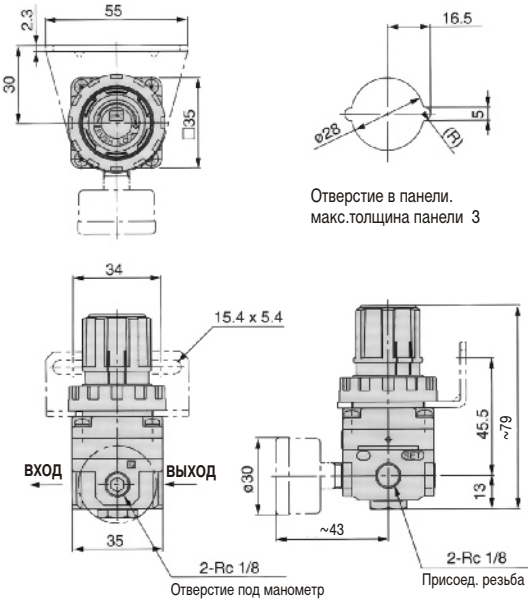
Номер для заказа	IRV1000-F01	IRV2000-F02	IRV3000-F03
Рабочая среда	Очищенный сж. воздух без содержания масла		
Диапазон давления на выходе (кПа)	-100~-1.3		
Точность настройки (кПа)	#0.13		
Макс. расход вакуума (нормл/мин)		60	100 150
Диапазон рабочих температур (°C) и температуры окружающей среды	5~60		
Присоединительная резьба	G1/8	G1/4	G3/8
Резьба для присоединения манометра	1/8		
Вес, (кг)	0.12	0.27	0.7

Принадлежности (заказываются отдельно)

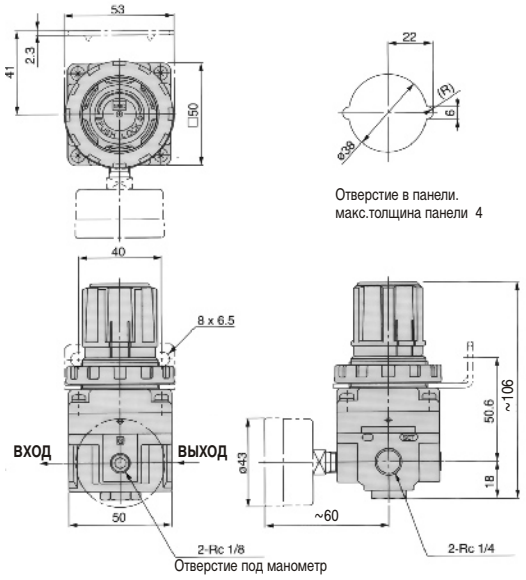
Типоразмер	IRV1000	IRV2000	IRV3000
Крепежный угольник	**P53801018**	**P53802016**	**P53803013**
Вакуумный манометр	**GZ33-K-01**	**GZ46-K-01**	

Размеры

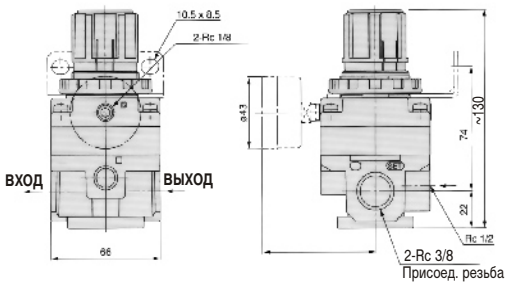
IRV1000-F01

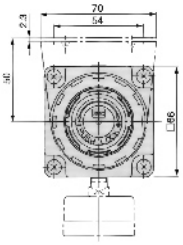


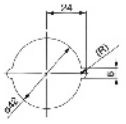
IRV2000-F02



IRV3000-F03







Электропневматический вакуумный преобразователь

ITV2090/ITV2091

Предназначен для преобразования управляющего электрического сигнала в пропорциональное по величине разрежение воздуха.

- Возможность выбора устройства с электрическим аналоговым или дискретным входом/выходом.
- Индикация величины разрежения.
- Пригоден для модульного монтажа.

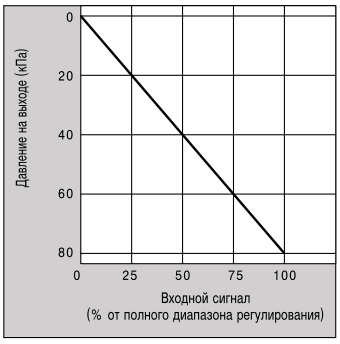
Технические характеристики

Модель		ITV2090	ITV2091
Электропитание	Напряжение	24VDC ± 10%	12 ~ 15VDC
	Потребление тока	≤ 0.12 A	≤ 0.18 A
Минимальное разрежение на входе		Мин разрежение на входе должно быть на 13,3 кПа меньше, чем установленная величина	
Максимальное разрежение на входе (кПа)		-101	
Диапазон регулирования (кПа)		-1.3 ~ -80	
Входной сигнал	Аналог. упр. по току *(мА)	4~20, 0~20	
	Ан. упр. по напр.	0~5VDC, 0~10VDC	
	Дискретное управление	4 точки	
Входное сопротивление	Аналог. упр. по току	~250 Ом	
	Аналог. упр. по напр.	~6.5 кОм	
	Дискретное управление	~2.7 кОм	
Выходной ** сигнал (для контроля)	Аналоговый выход	1~5 VDC (сопротивление нагрузки: ≥ 1 кОм)	
		4~20 мА (сопротивление нагрузки: ≤ 250 Ом)	
	Релейный выход	NPN открытый коллектор: макс. 30 В, 30 мА	
		PNP открытый коллектор: макс. 30 мА	
Линейность		≤ ±1% (от полного диапазона регулирования)	
Гистерезис		≤ 0.5% (от полного диапазона регулирования)	
Воспроизводимость		≤ ±0.5% (от полного диапазона регулирования)	
Чувствительность		≤ 0.2% (от полного диапазона регулирования)	
Влияние температуры		≤ ±0.12% (от полного диапазона регулирования)/ °C	
Индикация вых. давления	Точность	±3% (от полного диапазона регулирования)	
	Миним. значение	1кПа	
Рабочая температура (°C)		0~50	
Степень защиты		IP65	
Вес (г)		350	

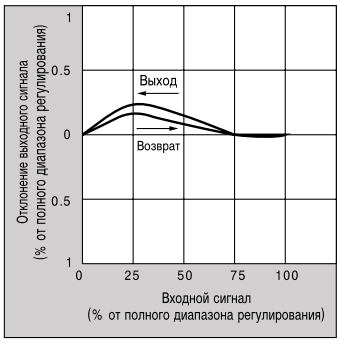
* 2-х проводной вариант 4~20 мА не выпускается. Требуется электропитание 24 или 12~15 В пост. тока.

** Можно выбрать либо аналоговый, либо релейный выход. При релейном варианте требуется выбрать между NPN и PNP выходом.

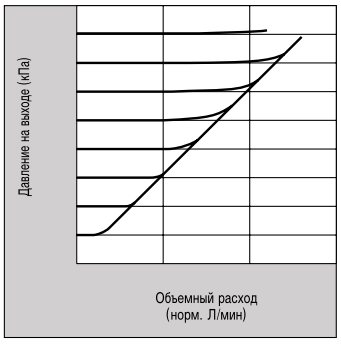
Линейность



Гистерезис



Характеристики расхода



Размеры см. стр. 73

Номер для заказа

Номер для заказа	Напряжение **питания**	Входной сигнал
ITV2090-042S5	24VDC	Аналог. упр. по току 4~20 мА
ITV2091-042S5	12 ~ 15VDC	
ITV2090-142S5	24VDC	Аналог. упр. по току 0~20 мА
ITV2091-142S5	12 ~ 15VDC	
ITV2090-242S5	24VDC	Аналог. упр. по напр. 0~5 В пост. тока
ITV2091-2412S5	12 ~ 15VDC	
ITV2090-342S5	24VDC	Аналог. упр. по напр 0~10 В пост. тока
ITV2091-242S5	12 ~ 15VDC	

Диапазон давления : -1,3 ~ -80 кПа
Выходной сигнал: аналоговый выход 4~20 мА
Резьба : Rc (PT) 1/4
Разъем: прямой (стандарт) 3м
Деление шкалы дисплея: 1 кПа

Принадлежности (заказываются отдельно)

Крепежный угольник	Номер для заказа
Прямой тип	**P3020114**
Угловый тип	**INI-398-0-6**

Вакуумный манометр

GZ46

Используется для индикации уровня разряжения воздуха

- Возможна модификация для панельного монтажа

Технические характеристики

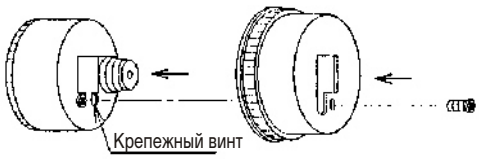
Точность индикации		±3% полной шкалы
Угол поворота стрелки		270°
Материал	Корпус	Сталь
	Крышка циферблата	Поликарбонат
	Основание	Латунь

Данные по заказу

Номер для заказа	Диапазон давления		Ед. измерения (двойная индикация)	Присоединительная резьба
	КПа	мм рт.ст.		
GZ46-K-01	-100 ~ 0	-760 ~ 0	кПа мм.рт.ст.	R(PT) 1/8
GZ46-K-02	-100 ~ 0	-760 ~ 0	кПа мм.рт.ст.	R(PT) 1/4

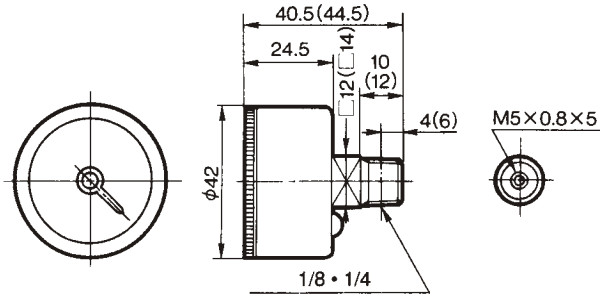
Крышки для панельного монтажа заказываются отдельно: код для заказа **1305104-1A**

Установка крышки для панельного монтажа



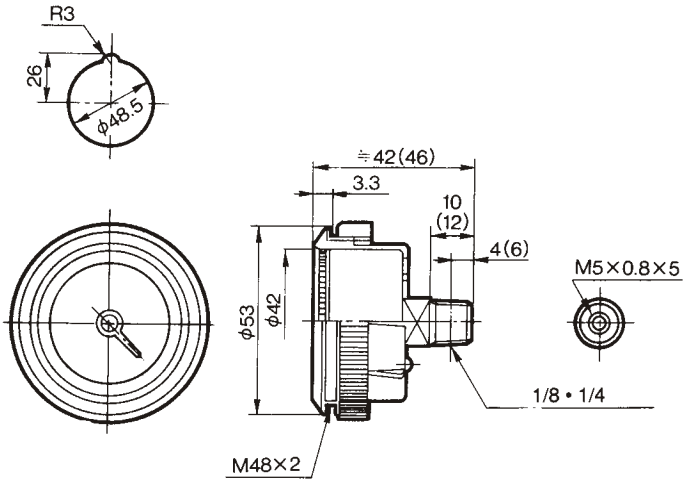
Размеры

Стандартный



Для панельного монтажа

(макс.толщина панели 3.5 мм)



LED Readout

Digital Pressure Switch

Series ZSE4E

(For vacuum)

ISE4E

(For positive pressure)

For General Pneumatics

Push-button calibration with easy to read LED Readout.

Auto preset function

By pressing the set button, the sensor response to air fluctuations, calculates an average and the switch displays the calculated pressure.

Two independent outputs

Allows the calibration of 2 different setpoints. (e.g. Change of vacuum pad size requiring different setpoints or two different supply pressures requiring different pressure confirmation points.)

Choice of display units

Display units can be easily selected and changed, making these switches globaly acceptable.

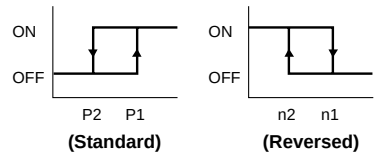
Vacuum	**kPa ⇔ mmHg ⇔ PSI ⇔ bar ⇔ InHg ⇔ kgf/cm²**
Positive press. (High)	**MPa ⇔ kgf/cm² ⇔ PSI ⇔ bar**
Positive press. (Low)	**kPa ⇔ kgf/cm² ⇔ PSI ⇔ bar**

Lock out mode

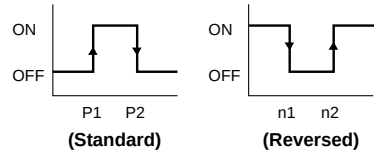
Prevents unauthorized changes to the calibration parameters.

Variety of switch output modes

Hysteresis mode



Window comparator mode



Exact detection of atmospheric pressure (For vacuum)

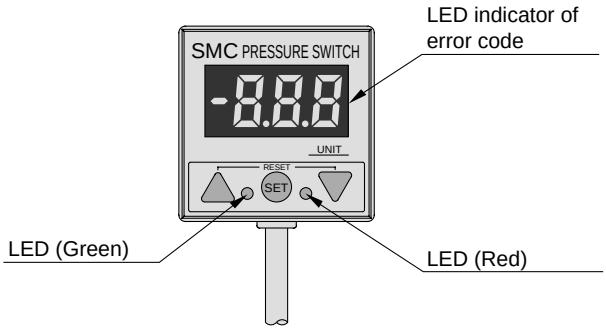
Atmospheric pressure can be immediately detected after vacuum release pressure is applied.

Self-diagnostic function

■**Over-voltage**

■**Over-pressure**

■**Data error**



Calibration data

The calibration data is stored in an EEPROM. The EEPROM is rated to keep its memory for 100,000 hours (approx. 11 years) without having power supplied.

Panel mounting available

A special adaptor permits panel mounting.

Dust/Splash proof cover (Optional)

Refer to the p.3.2-21 to 3.2-24.

How to Order

Setting pressure range

—	–0.1 to 1MPa
L	–10 to 100kPa

Positive pressure **ISE4 □ E □ — □ — □ □**

Vacuum **ZSE4 E □ — □ — □ □**

Style

—	Standard
D*	Dust/Splash proof

*Refer to p.3.2-24 for the dust/splash proof specifications(IP66).

Lead wire length (Grommet)

—	0.6m
L	3m

Port size

01	R 1/8
T1	NPTF 1/8

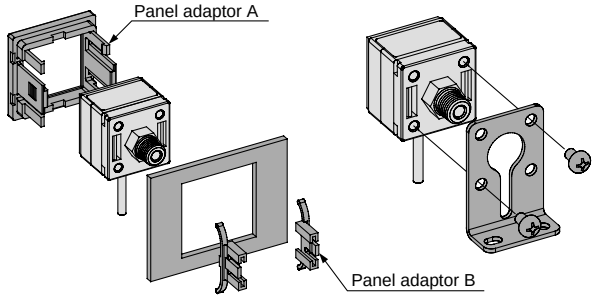
Note) Standard: M5 x 0.8 (Female)

Output specifications

26	Analog output (1 to 5V)
27	NPN Open collector/2 outputs
67	PNP Open collector/2 outputs

Panel mount adaptor No.
(Panel adaptor A + Panel adaptor B)
ZS-22-A
Panel adaptor A ·····ZS-22-01
Panel adaptor B ·····ZS-22-02

Bracket No.
(With two M4 mounting threads)
ZS-22-B



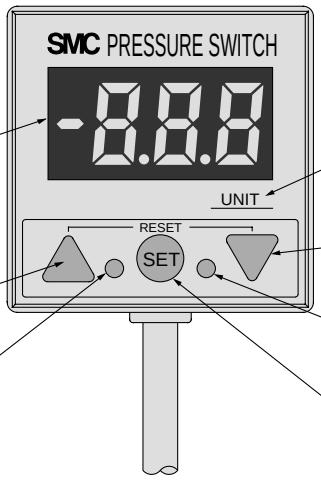
Specifications

Model		Vacuum ZSE4E	Positive pressure: 100kPa ISE4LE	Positive pressure: 1MPa ISE4E
Operating pressure		10 to –101kPa	–10 to 100kPa	–0.1 to 1MPa
Max. pressure		200kPa		1.0MPa
Min. display unit	kPa	1	1	–
	MPa	–	–	0.01
	mmHg	5	–	–
	kgf/cm²	0.01	0.01	0.1
	InHg	0.2	–	–
	PSI	0.1	0.1	1
	bar	0.01	0.01	0.1
Indicator light		ON: When Green (LED: OUT1 or Red: OUT2) turns on		
Frequency response		200Hz (5ms)		
Hysteresis	Hysteresis mode	Adjustable (Setting available from Hysteresis 0)		
	Window comparator mode (1)	Fixed (3 digits)		

Fluid	Air, Non corrosive gases
Temperature characteristics	±3% F.S. or less
Repeatability	±1% F.S. or less
Supply voltage	12 to 24V DC (Ripple ±10% or less)
Output specification	NPN open collector 30V, 80mA or less PNP open collector 80mA or less
Current consumption	–26, –27: 50mA or less, –67: 60mA or less
Error display	Green/Red light blinks. Display the error code on LED.
Pressure display	3 1/2 digits (8mm-size numerals)
Self diagnostic function	Over current(2), Over pressure, Data error, Pressure applied during zero out
Operating temperature range	0 to 50°C (No condensation)
Noise resistance	500Vp-p, Pulse width: 1μS, Standing: 1nS
Voltage resistance	Between external terminals and housing 1000V AC, 50/60Hz for 1 min.
Insulation resistance	Between external terminals and housing 2MΩ(500V DC by megameter)
Vibration resistance	10 to 500Hz Pulse width 1.5mm or acceleration 98 m/s^2 (smaller vibrations) to X, Y, Z directions (2 hrs)
Shock resistance	980 m/s^2 to X, Y, Z direction (3 times for each direction)
Lead wire	Grommet oil-resistant vinyl cabtire code -26 ø3.4 0.2 mm^2 3 core, -27, -67 ø35 0.14 mm^2 4 core
Weight(3)	Standard: 45g(including 0.6m-long lead wire), Dust/Splash proof: 110g
Port size	01: R(PT)1/8, M5 X 0.8 T1: NPTF1/8, M5 X 0.8
Protective construction(3)	Standard: IP40, Dust/Splash proof: IP66

Note 1) ●Window comparator mode:
The hysteresis is 3 digits, separate P1 from P2 by 7 digits or more and set them.
1 digit is the minimum pressure display unit. (See the table above.)
Note 2) ●Analog output has no overcurrent detection function.
Note 3) ●Refer to the p.3.2-21 to 3.2-24 for the details about the dust/splash proof specifications.

Description



RESET key

Press the UP and DOWN buttons simultaneously to reset the switch. Clears abnormalities. Display is "0".

LED

Displays mode.
Displays present pressure.
Displays error code.

UP key

Increases ON/OFF set point.
Switches to the peak holding mode.

LED (Green)

Displays switch operation condition at OUT1. Blinks on and off when an error occurs.

UNIT

After selecting a unit, place a unit sticker here.

DOWN key

Decreases ON/OFF set point.
Used for unit change and output mode change.

LED (Red)

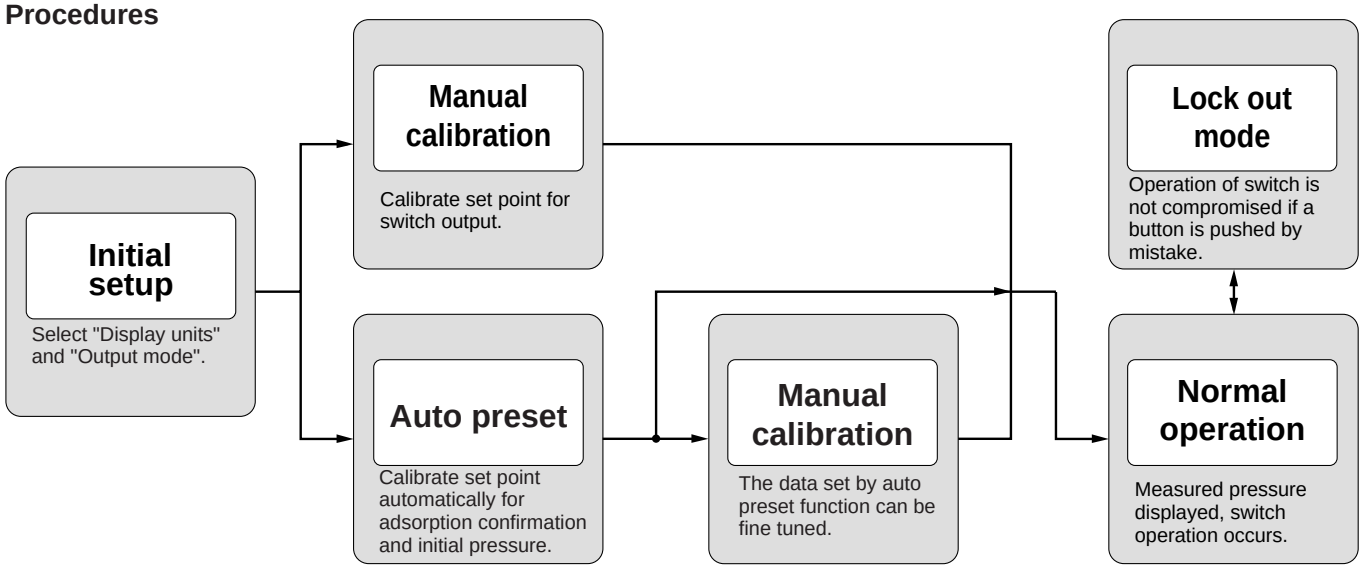
Displays switch operation condition at OUT2. Blinks on and off when an error occurs.

SET key

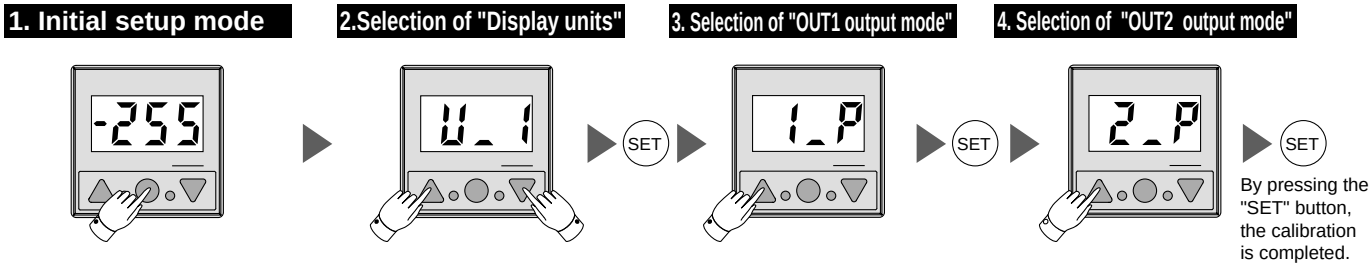
Changes the mode of operation.

Calibration Procedures

Procedures



Initial setup



Press the "SET" button for 1 to 2 seconds until "U_□"is displayed.

Select "Display units" by pressing the ▲ button or the ▼ button.

U_□ └ Units

(Refer to **Table1**.)

Select "OUT1 output mode" by pressing the ▲ button.

1_P: Normal mode

1_n: Reversed output mode

(Refer to **Table2**.)

Select "OUT2 output mode" by pressing the ▲ button.

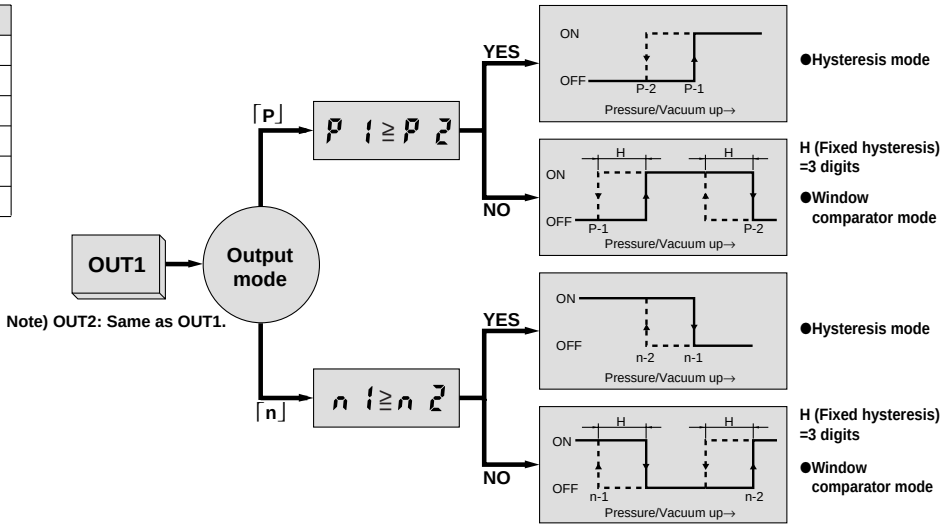
2_P: Normal mode

2_n: Reversed output mode

Table1

No.	ZSE4E	ISE4LE	ISE4E
1	kPa	kPa	MPa
2	kgf/cm^2	kgf/cm^2	kgf/cm^2
3	bar	bar	bar
4	PSI	PSI	PSI
5	InHg	——	——
6	mmHg	——	——

Table2 Output mode



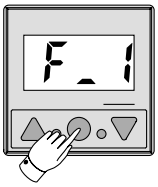
Calibration Procedures

Manual calibration

1. Calibration value input mode (Manual)

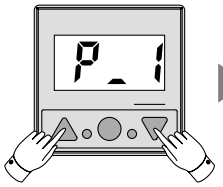
Press the "SET" button until "F_1" is displayed.

2.Preparation of manual setting



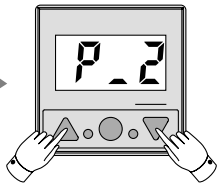
"F_1" is for manual setting, so press the "SET" button one more time.

3.Input set point value for OUT1(1)



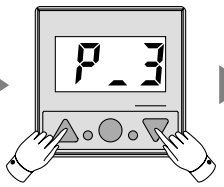
▲ button: Increase set point value
▼ button: Decrease set point value
"P_1" alternates with set point value.

4. Input set point value for OUT1(2)



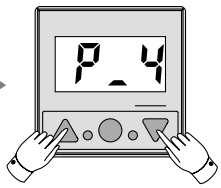
▲ button: Increase set point value
▼ button: Decrease set point value
"P_2" alternates with set point value.

5. Input set point value for OUT2(1)



▲ button: Increase set point value
▼ button: Decrease set point value
"P_3" alternates with set point value.

6. Input set point value for OUT2(2)

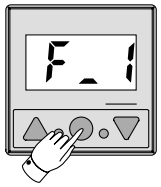


▲ button: Increase set point value
▼ button: Decrease set point value
"P_4" alternates with set point value.

By pressing the "SET" button, the calibration is completed.

Auto preset (In case of the adsorption confirmation)

1. Calibration value input mode



Press the "SET" button until "F_1" is displayed.

2. Auto preset mode

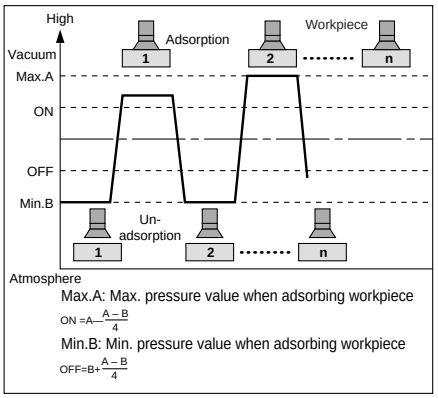
Select "F_2" by pressing the ▲ button.

3.Preparation for auto preset

When the initial condition for adsorption confirmation are met, press the "SET" button.
(Press the ▲ button and ▼ button at once when it is not required to calibrate OUT1.)

4. OUT1 auto preset

Repeat the steps of adsorption and no adsorption several times. This will set the best values automatically.



Max.A: Max. pressure value when adsorbing workpiece

$ON = A - \frac{A-B}{4}$

Min.B: Min. pressure value when adsorbing workpiece

$OFF = B + \frac{A-B}{4}$

5. Preparation for auto preset

After pressing, OUT1 auto preset is completed.

When the initial conditions for adsorption confirmation are met, press the "SET" button.
(Press the ▲ button and ▼ button at once when it is not required to calibrate OUT2.)

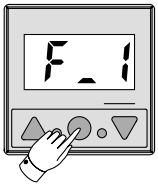
6. OUT2 auto preset

After pressing the "SET" button, OUT2 auto preset is completed.

Repeat the steps of adsorption and no adsorption several times. This will set the best values automatically.

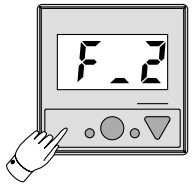
Auto preset (In case of the initial pressure confirmation)

1. Calibration value input mode



Press the "SET" button until "F_1" is displayed.

2. Auto preset mode



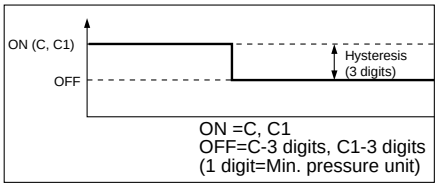
Select "F_2" by pressing the ▲button.

3. Preparation for auto preset

When the initial conditions for adsorption confirmation are met, press the "SET" button.
(Press the ▲ button and ▼ button at once when it is not required to calibrate OUT1.)

4. OUT1 auto preset

The best values can be set automatically.



5. Preparation for auto preset

OUT1 auto preset is complated.

When the initial conditions for adsorption confirmation are met, press the "SET" button.
(Press the ▲ button and ▼ button at once when it is not required to calibrate OUT2.)

6. OUT2 auto preset

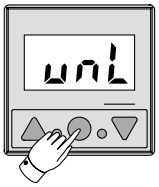
The best values can be set automatically.

After pressing the "SET" button, OUT2 auto preset is completed.

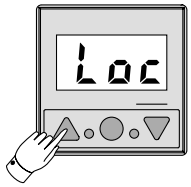
Other functions

●**Lock out mode** ---------- **Prevents the wrong operation.**

Lock out



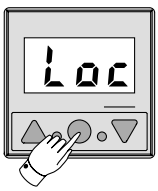
Press the "SET" button for more than 2 seconds until the display changes to "F_1 U_1" and then "unL".



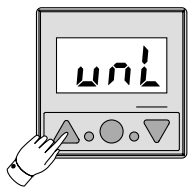
Select "Loc" by pressing the ▲ button.

Calibration is completed.

Lock out release



Press the "SET" button for more than 2 seconds until is displayed.



Select "unL" by pressing the ▲ button.

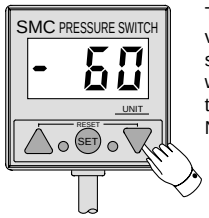
Calibration is completed.

Other Functions

●Peak Mode High

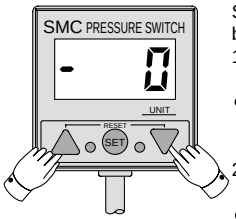
To display the high peak pressure (highest degree of vacuum), press the UP button for at least 1 second during normal operation. The LED indicator will blink. To return back to normal operation press the UP button for at least 1 second again.
Note) There is no "High" or "Low" indication on the display.

●Peak Mode Low



To display the low peak pressure (lowest degree of vacuum), press the DOWN button for at least 1 second during normal operation. The LED indicator will blink. To return back normal operation, press the DOWN button for at least 1 second again.
Note) There is no "High" or "Low" indication on the display.

●Reset Function



Simultaneously pressing the UP and DOWN button will reset the switch.
1) Reset will cause the following during normal operation:
- ●Peak high is cleared.
  Peak low is cleared.
  Zero is reset.

2) Reset will cause the following when error has occured:
- ●Switch will assume normal operation (all calibration data has retained).
- ●In case of data error, reset the setup mode and then switch will assume normal operation.

Note) In the setup mode, the reset function does not work.

Error Codes

Error codes

Display	Cause	Solution
Er 4	Calibration was changed by accident, reason unknown.	Push the Up and Down buttons to reset all the data.
Er 1 (1)	Output 1 output current is exceeding 80mA.	Turn off the power and verify the load connected output 1.
	Output 1 (Back wire) could be shorted out.	Verify that the output is not shorted out and then reset the switch.
Er 2 (1)	Output 2 output current is exceeding 80mA.	Turn off the power and verify the load connected output 2.
	Output 2 (white wire) Could be shorted out.	Verify that the output is not shorted out and then reset the switch.
Er 3	Max. operating pressure has been exceeded for more than 2 seconds. 1.5 X Max. operating prss. for pressure switch.0.5MPa (72psi) for vacuum switch.	Reduce the supply pressure to below the max. pressure rating and then reset the switch.
- - - -	When zeroing out the gauge, pressure differences ±0.07MPa for ISE4E and ±7kPa for ZSE4E have occured.	Apply atmospheric pressure and then reset the switch.

Note 1) Does not apply to Analog output.

⚠ Precautions

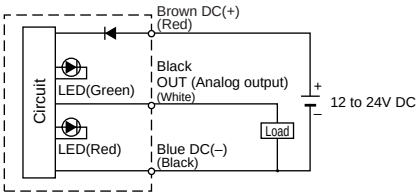
Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog, and refer to p.3.0-7 to 3.0-9 for precautoins on every series.

Internal Circuit and Wiring

Lead wire colors inside ( ) are those prior to conformity with IEC standards

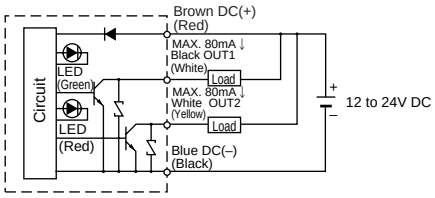
-26
Analog Output

1 to 5V (±5%F.S.)
Load impedance: 1kΩ



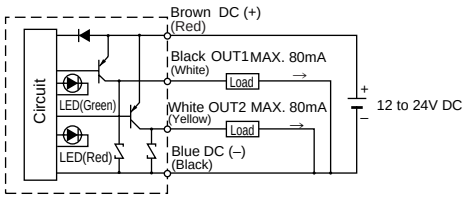
-27
NPN Open Collector

Max.30V, 80mA
Residual voltage:
1V or less



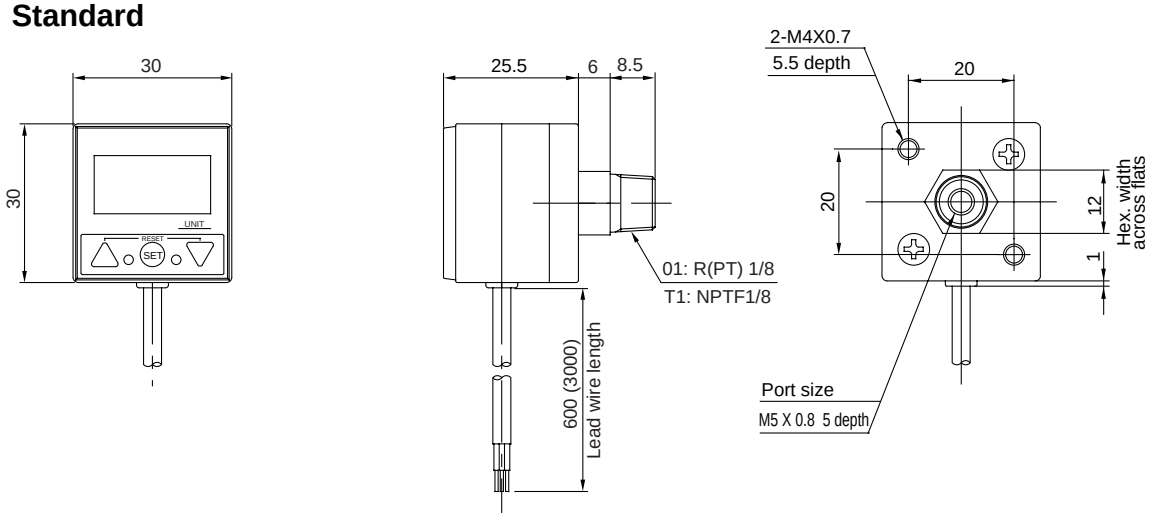
-67
PNP Open Collector

Max.80mA

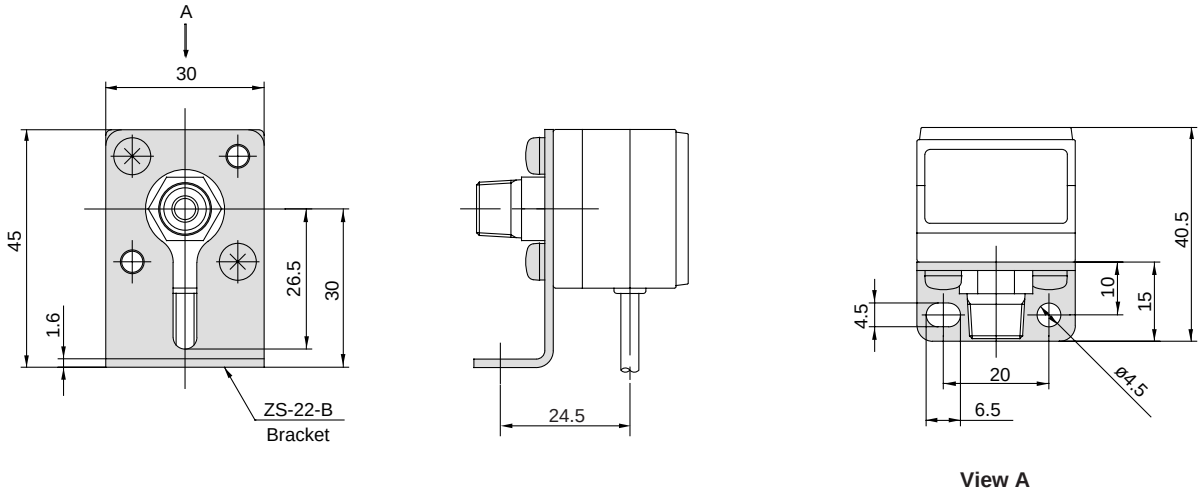


Dimensions

Standard

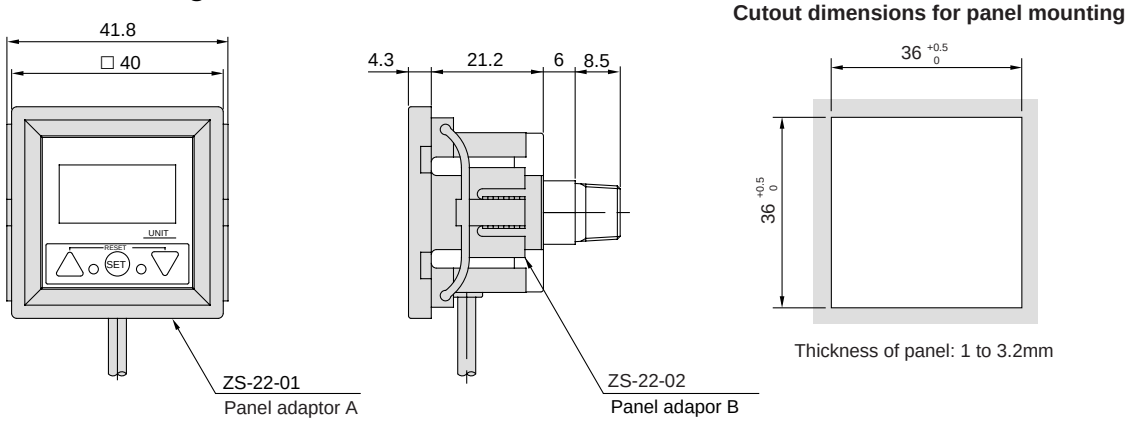


With bracket



View A

Panel mounting



Cutout dimensions for panel mounting

Thickness of panel: 1 to 3.2mm

With Backlight
Digital Pressure Switch
Series ZSE4B
(For vacuum)
ISE4B
(For positive pressure)

The backlight display is easy to read even in the dark.

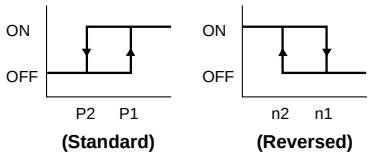
Choice of display units

Display units can be easily selected and changed, making these switches globaly acceptable.

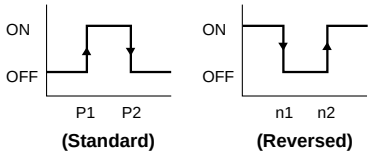
Vacuum	**kPa ⇔ mmHg ⇔ PSI ⇔ bar**
Positive press. (High)	**MPa ⇔ kgf/cm² ⇔ PSI ⇔ bar**
Positive press. (Low)	**kPa ⇔ kgf/cm² ⇔ PSI ⇔ bar**

Variety of switch output modes

Hysteresis mode



Window comparator mode

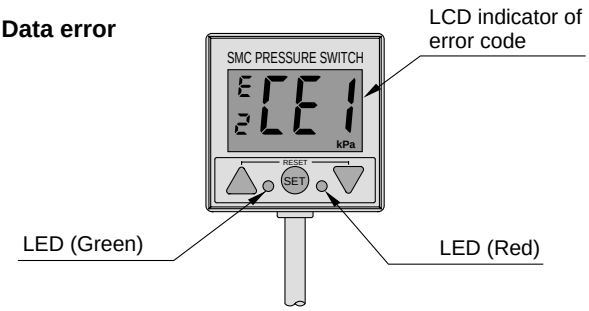


Exact detection of atmospheric pressure (For vacuum)

Atmospheric pressure can be immediately detected after vacuum release pressure is applied.

Self-diagnostic function

- **Over-voltage**
- **Over-pressure**
- **Data error**



Calibration data

The calibration data is stored in an EEPROM. The EEPROM is rated to keep its memory for 100,000 hours (approx. 11 years) without having power supplied.

Panel mounting available.

A special adaptor permits panel mounting.

Dust/Splash proof cover (Optional)

Refer to the p.3.2-21 to 3.2-24.

How to Order

Setting pressure range

—	–0.1 to 1MPa
L	–10 to 100kPa

Positive pressure	ISE4 □ B □ — □ — □ □
Vacuum	ZSE4 B □ — □ — □ □

Style

—	Standard
D*	Dust/Splash proof

*Refer to p.3.2-24 for the dust/splash proof specifications(IP66).

Lead wire length (Grommet)

—	0.6m
L	3m

Port size

01	Rc(PT) 1/8
T1	NPTF 1/8

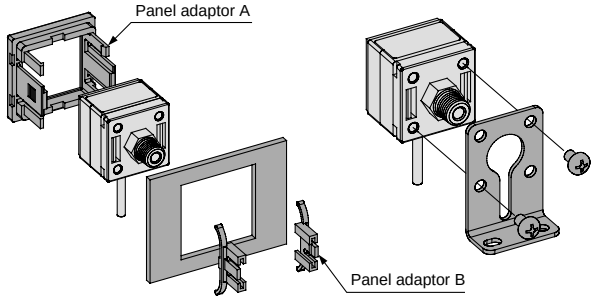
Note) Standard: M5 X 0.8 (Female)

Output specifications

25	NPN Open collector/1 output (Sinking)
26	Analog output (1 to 5V)
65	PNP Open collector/1 output (Sourcing)

Panel mount adaptor No.
(Panel adaptor A + Panel adaptor B)
ZS-22-A
Panel adaptor A ·····ZS-22-01
Panel adaptor B ·····ZS-22-02

Bracket No.
(With two M4 mounting threads)
ZS-22-B



⚠Caution

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog and refer to p.3.0-7 to 3.0-9 for precautions on every series.

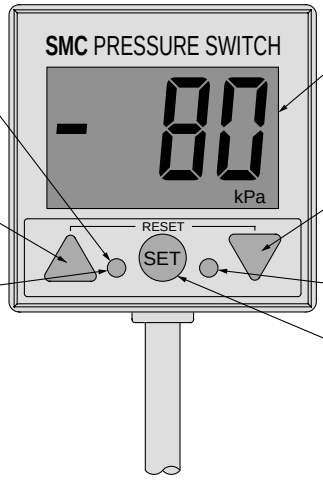
Specifications

Model		Vacuum ZSE4B	Positive pressure: 100kPa ISE4LB	Positive pressure: 1MPa ISE4B
Operating pressure range		10 to –101kPa	–10 to 100kPa	–0.1 to 1MPa
Max. pressure		200kPa		1MPa
Min. display unit	kPa	1	1	–
	MPa	–	–	0.01
	mmHg	5	–	–
	kgf/cm²	–	0.01	0.1
	PSI	0.1	0.1	1
	bar	0.01	0.01	0.1
Indicator light		ON: When Green LED turns on		
Frequency response		200Hz (5ms)		
Hysteresis(1)	Hysteresis mode	Adjustable (3 digits or more)		
	Window comparator mode	Fixed (3 digits)		

Fluid	Air, Non corrosive gases
Temperature characteristics	±3% F.S. or less
Repeatability	±1% F.S. or less
Supply voltage	12 to 24V DC (Ripple ± 10% or less)
Output Specification	NPN Open collector 30V, 80mA or less PNP open collector 80mA or less
Current consumption	45mA or less
Backlight	Yellow-green
Error display	Red light blinks. Display the error code on LCD
Pressure display	3 1/2 digits LCD (10mm-size numerals)
Self-diagnostic function	(Over current(2)), Over pressure, Data error, Pressure during zero out
Operating temperature range	0 to 50°C (No condensation)
Noise resistance	1,000Vp-p, Pulse width: 1μS, Standing: 1nS
Voltage resistance	Between external terminals and housing 1000V AC 50/60Hz for 1 min.
Insulation resistance	Between external terminals and housing 2MΩ (500V DC by megameter)
Vibration resistance	10 to 500Hz Pulse width 1.5mm or acceleration 98 m/s^2 (smaller vibrations) to X, Y, Z direction (2 hrs)
Shock resistance	980 m/s^2 to X, Y, Z direction (3 times for each direction)
Lead wire	Grommet oil-resistant vinyl cabtire code ø3.4 0.2 mm^2 3 core
Weight(3)	Standard: 45g (including 0.6m-long lead wire), Dust/Splash proof: 110g
Port size	01: R(PT) 1/8, M5 X 0.8 T1: NPTF1/8, M5 X 0.8
Protective construction(3)	Standard: IP40, Dust/Splash proof: IP66

Note 1) ●Hysteresis mode: When the values of P1 and P2 are the same or when P1 > P2 within 3 digits, the hysteresis will be automatically 3 digits for the set value of P1.
●Window comparator mode: The hysteresis is 3 digits, so separate P1 from P2 by 7 digits or more and set them. 1 digit is the minimum pressure display unit. (See the table above.)
Note 2) ●Analog output has no overcurrent detection function.
Note 3) ●Refer to p.3.2-21 to 3.2-24 for the details about the dust/splash proof specifications.

Description



RESET key
Press the UP and DOWN buttons simultaneously to reset the switch. Clears abnormalities. Displays "0".

UP key
Increases ON/OFF set point. Switches to the peak holding.

LED (Green)
Displays switch operation condition.

LCD
Displays present pressure. Displays ON/OFF setting value. Displays error code. Displays unit.

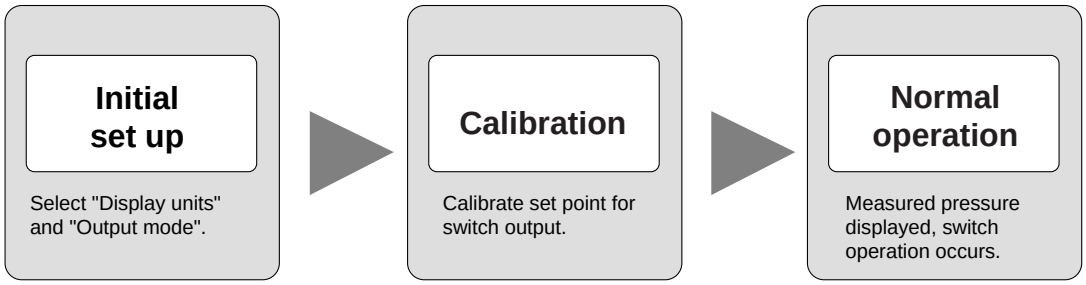
DOWN key
Decreases ON/OFF set point. Used for peak mode low change, unit change and output mode change.

LED (Red)
Blinks on and off when an error occurs.

SET key
Switches the mode. Used for unit change and output mode change by pressing the button for at least 1 second.

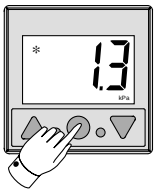
Calibration Procedures

Procedures



Initial setup

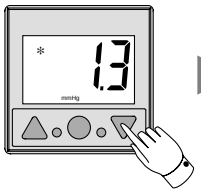
1. Initial setup mode



Press the "SET" button for at least 1 second. "1.3" is displayed and the display blinks.

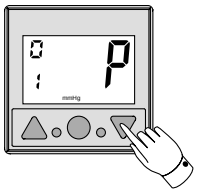
∗) "1.3" is a program version of a micro computer.

2. Selection of "Display units"



Select "Display unit" by pressing the ▼ button.
For
High prss. MPa → kgf/cm² → PSI → bar
Low prss. kPa → kgf/cm² → PSI → bar
For vacuum kPa → mmHg → PSI → bar

3. Selection of "Output mode"

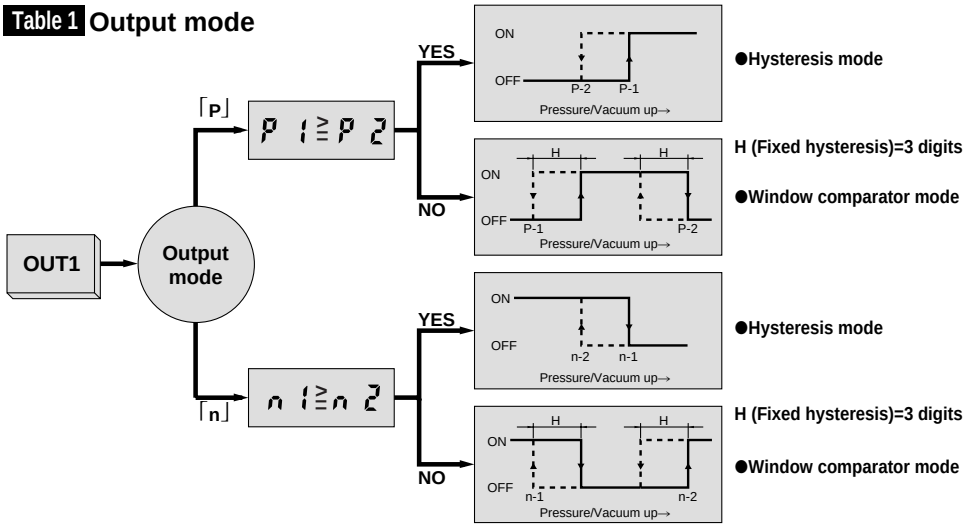


Select "Output mode" by pressing the ▼ button.

P: Normal mode
n: Reversed output mode
(Refer to **Table 1** .)

By pressing the "SET" button, the calibration is completed.

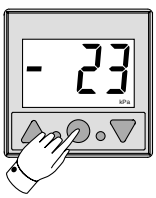
Table 1 Output mode



- ●Hysteresis mode
- H (Fixed hysteresis)=3 digits
- ●Window comparator mode
- ●Hysteresis mode
- H (Fixed hysteresis)=3 digits
- ●Window comparator mode

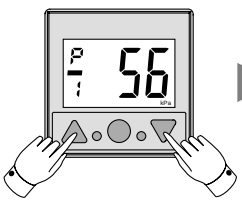
Calibration procedures

1. Set point input mode



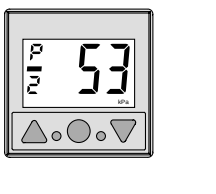
Press the "SET" button.

2. Input set point value (1)



▲ button: Increase set point value
▼ button: Decrease set point value

3. Input set point value (2)



By pressing the "SET" button, the calibration is completed.

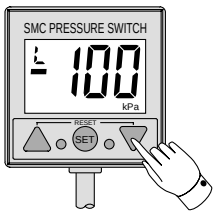
▲ button: Increase set point value
▼ button: Decrease set point value

Other Functions

●Peak Mode High

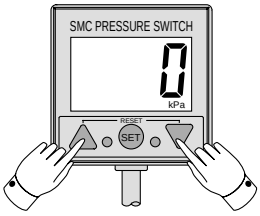
To display the high peak pressure (highest degree of vacuum), press the UP button during normal operation. The LCD displays "H". To return back to normal operation press the UP button again.

●Peak Mode Low



To display the low peak pressure (lowest degree of vacuum), press the DOWN button during normal operation. The LCD displays "L". To return back normal operation, press the DOWN button again.

●Reset Function



Simultaneously pressing the UP and DOWN button will reset the switch.

1) Reset will cause the following during normal operation:
- ●Peak high is cleared.
- Peak low is cleared.
- Zero is reset.

2) Reset will cause the following when error has occured:
- ●Switch will assume normal operation (all calibration data has retained).
- ●In case of data error, reset the setup mode and then switch will assume normal operation.

Note) In the setup mode, the reset function does not work.

Error Codes

Error codes

Display	Cause	Solution
E1 dE	Calibration was changed by accident, reason unknown.	Push the Up and Down buttons to reset all the data.
E2 CE1 (1)	Output 1 output current is exceeding 80mA.	Turn off the power and verify the load connected output 1.
	Output 1 (Back wire) could be shorted out.	Verify that the output is not shorted out and then reset the switch.
E3 PE	Max. operating pressure has been exceeded for more than 2 seconds. 1.5 X Max. operating prss. for pressure switch 0.5MPa (72psi) for vacuum switch	Reduce the supply pressure to below the max. pressure rating and then reset the switch.
E4 HP	When zeroing out the gauge, pressure differences ±0.07MPa for ISE4B and ±7kPa for ZSE4B have occured.	Apply atmospheric pressure and then reset the switch.

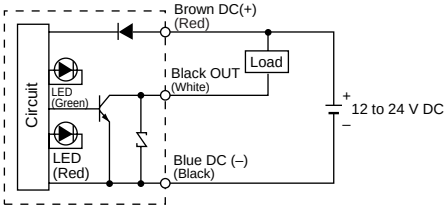
Note 1) Does not apply to Analog output.

Internal Circuit and Wiring

Lead wire colors inside ( ) are those prior to conformity with IEC standards.

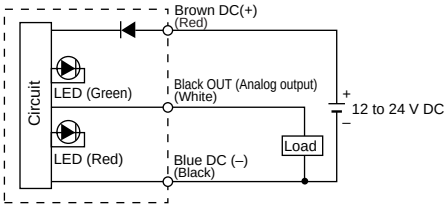
-25
NPN Open Collector

Max.30V, 80mA
Residual voltage:
1V or less



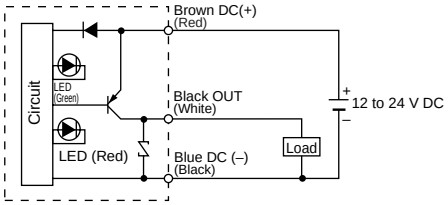
-26
Analog Output

1 to 5V (±5%F.S.)
Load impedance: 1kΩ



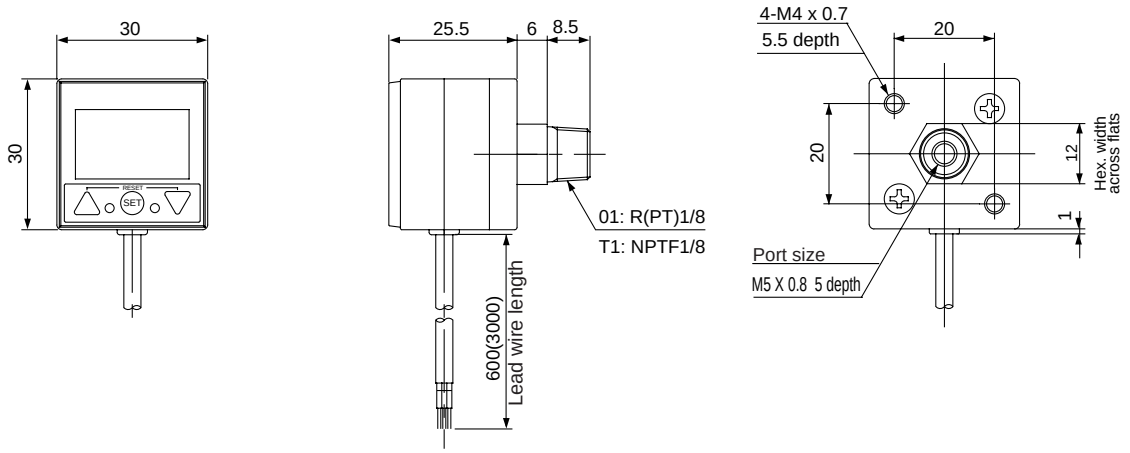
-65
PNP Open Collector

Max.80mA

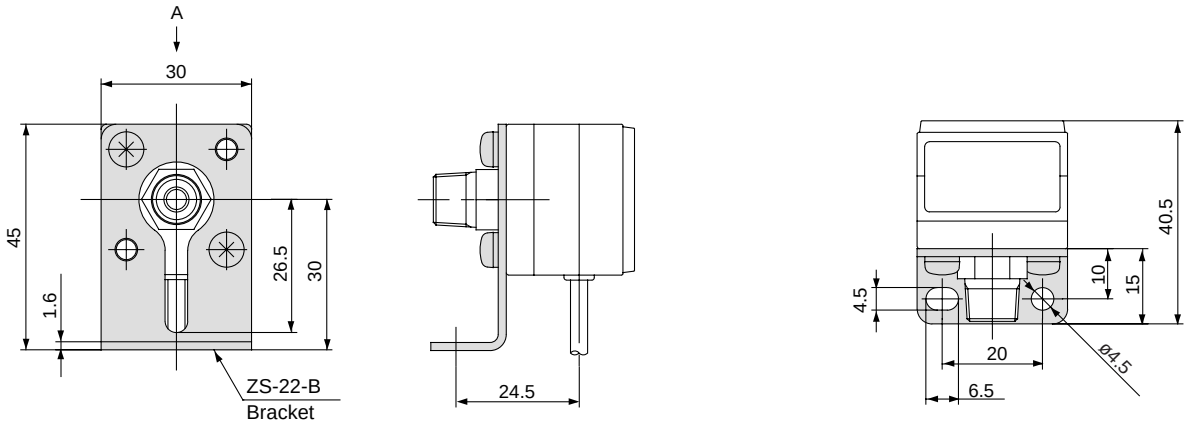


Dimensions

Standard

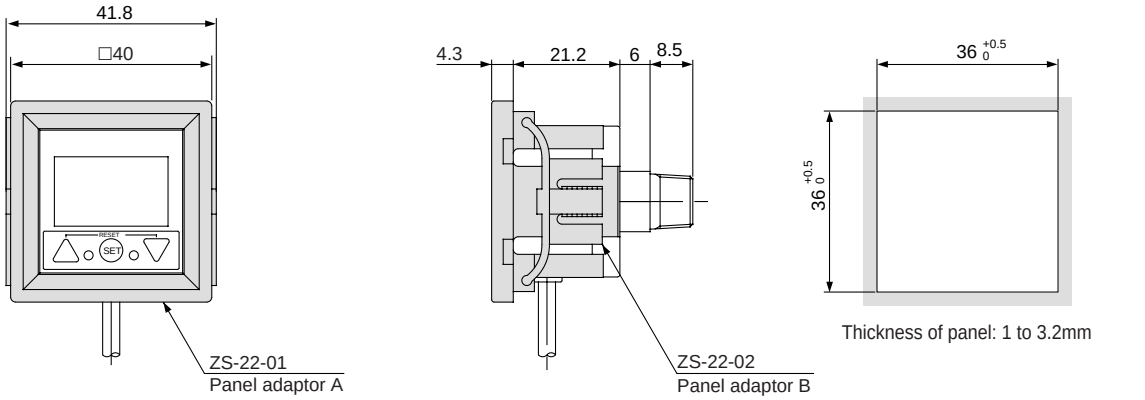


With bracket



View A

Panel mounting



Cutout dimensions for panel mounting

Thickness of panel: 1 to 3.2mm

For General Pneumatics

LCD Readout
Digital Pressure Switch
Series ZSE4
(For vacuum)
ISE4
(For positive pressure)

Digital Readout and
push-button calibration

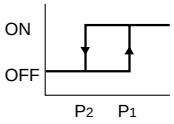
Choice of display units

Display units can be easily selected and changed, making these switches globaly acceptable.

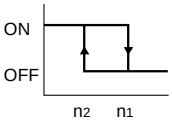
Vacuum	**kPa ⇔ mmHg ⇔ PSI ⇔ bar**
Positive press. (High)	**MPa ⇔ kgf/cm² ⇔ PSI ⇔ bar**
Positive press. (Low)	**kPa ⇔ kgf/cm² ⇔ PSI ⇔ bar**

Variety of switch output modes

Hysteresis mode

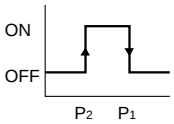


(Standard)

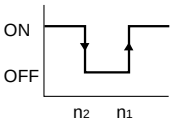


(Reversed)

Window comparator mode



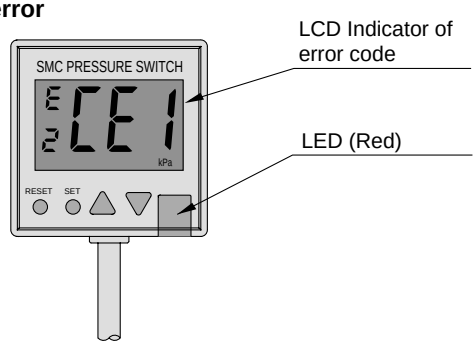
(Standard)



(Reversed)

Self-diagnostic function

- **Over-voltage**
- **Over-pressure**
- **Data error**



Panel mounting available.

A special adaptor permits panel mounting.

Dust/Splash proof cover (Optional)

Refer to the p.3.2-21 to 3.2-24.

Calibration data

The calibration data is stored in an EEPROM. The EEPROM is rated to keep its memory for 100,000 hours (approx. 11 years) without having power supplied.

How to Order

Setting pressure range

—	0 to 1MPa
L	0 to 100kPa

Positive pressure ISE4 □□ – □ – □ □

Vacuum ZSE4 □□ – □ – □ □

Style

—	Standard
D*	Dust/Splash proof

*Refer to p.3.2-22 for the dust/splash proof specifications(IP66).

Lead wire length (Grommet)

—	0.6m
L	3m

Port size

01	Rc(PT) 1/8
T1	NPTF 1/8

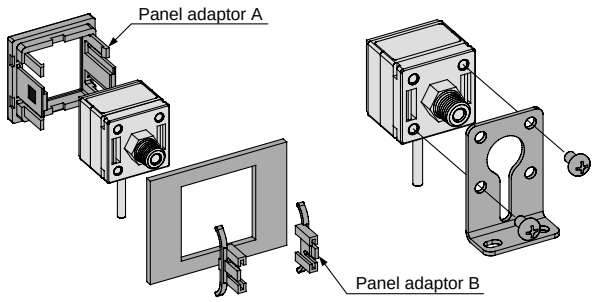
Note) Standard: M5 x 0.8 (Female)

Output specifications

25	NPN Open collector/1output (Sinking)
26	Analog output (1 to 5V)
65	PNP Open collector/1 output (Sourcing)

Panel mount adaptor No.
(Panel adaptor A + Panel adaptor B)
ZS-22-A
Panel adaptor A ·····ZS-22-01
Panel adaptor B ·····ZS-22-02

Bracket No.
(With two M4 mounting threads)
ZS-22-B



⚠Caution

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog and refer to p.3.0-7 to 3.0-9 for precautions on every series.

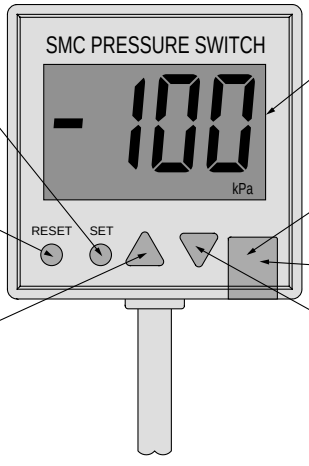
Specifications

Model		Vacuum ZSE4	Positive pressure: 100kPa ISE4L	Positive pressure: 1MPa ISE4
Operating pressure range		0 to –101kPa	0 to100kPa	0 to 1MPa
Max. pressure		200kPa		1MPa
Min.display unit	kPa	1	1	–
	MPa	–	–	0.01
	mmHg	5	–	–
	kgf/cm²	–	0.01	0.1
	PSI	0.1	0.1	1
	bar	0.01	0.01	0.1
Indicator light		ON: When Green LED turns on		
Frequency response		200Hz (5ms)		
Hysteresis(1)	Hysteresis mode	Adjustable (3 digits or more)		
	Window comparator mode	Fixed (3 digits)		

Fluid	Air, Non corrosive gases
Temperature characteristics	±3% F.S. or less
Repeatability	±1% F.S. or less
Supply voltage	12 to 24V DC (Ripple±10% or less)
Output specification	NPN open collector 30V, 80mA or less PNP open collector 80mA or less
Current consumption	25mA or less
Error display	Red light blinks. Display the error code on LCD
Pressure display	3 1/2 digits (10 mm-size numerals)
Self-diagnostic function	(Over current(2)), Over pressure, Data error, Pressure during zero out
Operating temperature range	0 to 50°C (No condensation)
Noise resistance	1000Vp-p, Pulse width: 1μ S·Standing: 1nS
Voltage resistance	Between external terminals and housing 1000V AC 50/60Hz for 1 min.
Insulation resistance	Between external terminals and housing 2MΩ (500V DC by megameter)
Vibration resistance	10 to 500 Hz Pulse width 1.5mm or acceleration 98 m/s^2 (smaller vibrations) to X, Y, Z direction (2 hrs)
Shock resistance	980 m/s^2 to X, Y, Z direction (3 times for each direction)
Lead wire	Grommet oil-resistant vinyl cabtire code ø3.4 0.2 mm^2 3 core
Weight	Standard: 40g (including 0.6m-long lead wire), Dust/Splash proof: 110g
Port size(2)	01: R(PT)1/8, M5 X 0.8 T1: NPTF1/8, M5 X 0.8
Protective construnction(3)	Standard: IP40, Dust/Splash proof: IP66

Note 1) ●Hysteresis mode: When the values of P1 and P2 are the same or when P1>P2 within 3 digits, the hysteresis will be automatically 3 digits for the set value of P1.
●Window comparator mode: The hysteresis is 3 digits, so separate P1 from P2 by 7 digits or more and set them. 1 digit is the minimum pressure display unit. (See the table above.)
Note 2) ●Analog output has no overcurrent detection function.
Note 3) ●Refer to p.3.2-21 to p.3.2-24 for the details about the dust/splash proof specifications.

Description



SET key
Switches the mode. Used for unit change and output mode change by pressing the button for at least 1 second.

RESET key
Clears abnormalities. Displays "0".

UP key
Increases ON/OFF set point. Switched to peak mode high by pressing the key during normal operation.

LCD
Displays present pressure.
Displays ON/OFF setting value.
Displays error code.
Displays unit.

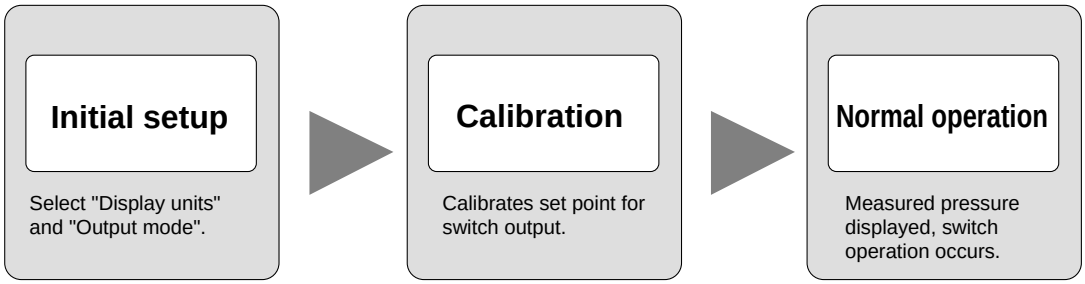
LED (Green)
Displays OUT1 operation condition.

LED (Red)
Blinks on and off when an error occurs.

DOWN key
Decreases ON/OFF set point. Switched to peak mode low by pressing the key during normal operation. Used for unit change and output mode change.

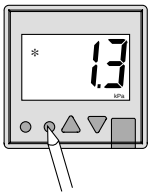
Calibration Procedures

Procedures



Initial setup

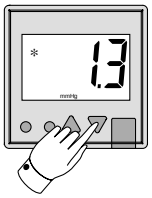
1. Initial setup mode



Press the "SET" button for at least 1 second. "1.3" is displayed and the display blinks.

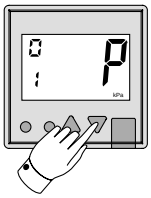
∗) "1.3 " is a program version of micro computer.

2. Selection of "Display unit"



Select "Display unit" by pressing the ▼ button.
For
High prss. MPa → kgf/cm² → PSI → bar
Low prss. kPa → kgf/cm² → PSI → bar
For vacuum kPa → mmHg → PSI → bar

3. Selection of "Output mode"

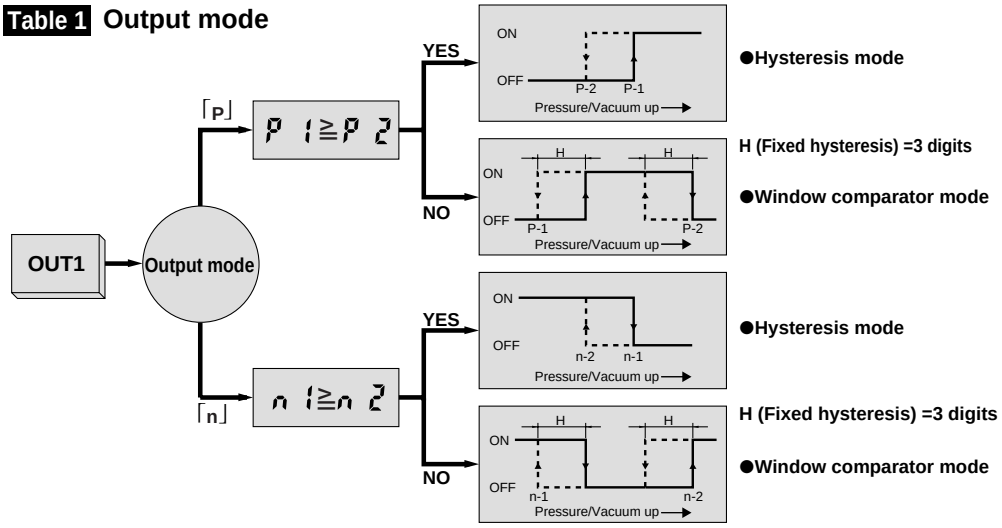


Select "Output mode" by pressing the ▼ button.

P: Normal mode
n: Reversed output mode
(Refer to **Table 1**.)

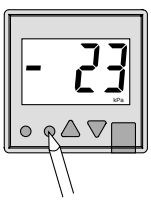
By pressing the "SET" button, the calibration is completed.

Table 1 Output mode



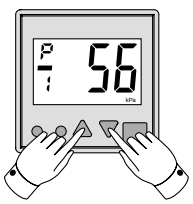
Calibration procedures

1. Set point value input mode



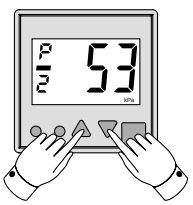
Press the "SET" button.

2. Input set point value (1)



▲ button: Increase set point value
▼ button: Decrease set point value

3. Input set point value (2)

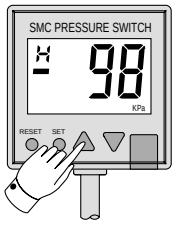


▲ button: Increase set point value
▼ button: Decrease set point value

By pressing the "SET" button, the calibration is completed.

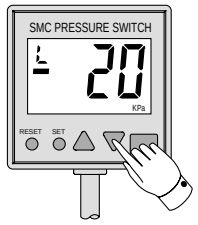
Other Functions

●Peak Mode High



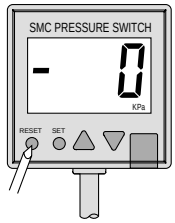
To display the high peak pressure (highest degree of vacuum), press the UP button during normal operation. The LCD displays "H". To return back to normal operation press the UP button again.

●Peak Mode Low



To display the low peak pressure (lowest degree of vacuum), press the DOWN button during normal operation. The LCD displays "L". To return back normal operation, press the DOWN button again.

●Reset Function



Simultaneously pressing the UP and DOWN button will reset the switch.

1) Reset will cause the following during normal operation:
- Peak high is cleared.
  Peak low is cleared.
  Zero is reset.

2) Reset will cause the following when error has occured:
- Switch will assume normal operation (all calibration data has retained).
- In case of data error, reset the setup mode and then switch will assume normal operation.

Note) In the setup mode, the reset function does not work.

Error Codes

Error codes

Display	Cause	Solution
dE	Calibration was changed by accident, reason unknown.	Push RESET to reset all the data.
CE1 (1)	Output 1 output current is exceeding 80mA.	Turn off the power and verify the load connected output 1.
	Output 1 (Black wire) could be shorted out.	Verify that the output is not shorted out and reset the switch.
PE	Max. operating pressure has been exceeded for more than 2 seconds.1.5 x Max.operating prss. For pressure switch 0.5MPa (72psi) for vacuum switch	Reduce the supply pressure to below the max. pressure rating and then reset the switch.
HP	When zeroing out the gauge, pressure differences ±0.07MPa for ISE4 and ±7kPa for ZSE4 have occured.	Apply atmospheric pressure and then reset the switch.

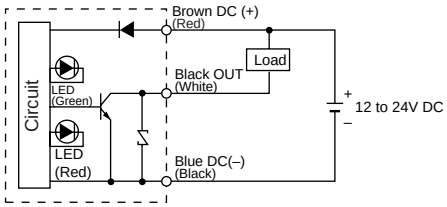
Note 1) Does not apply to Analog output.

Internal Circuit and Wiring

Lead wire colors inside ( ) are those prior to conformity with IEC standards.

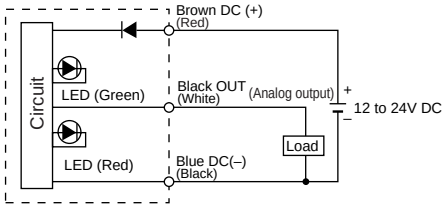
-25
NPN Open Collector

Max.30V, 80mA
Residual voltage:
1V or less



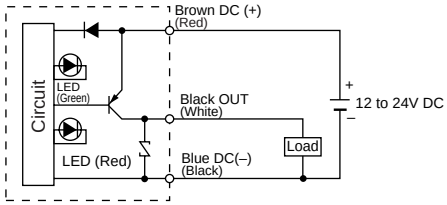
-26
Analog Output

1 to 5V (±5%F.S.)
Load impedance: 1kΩ



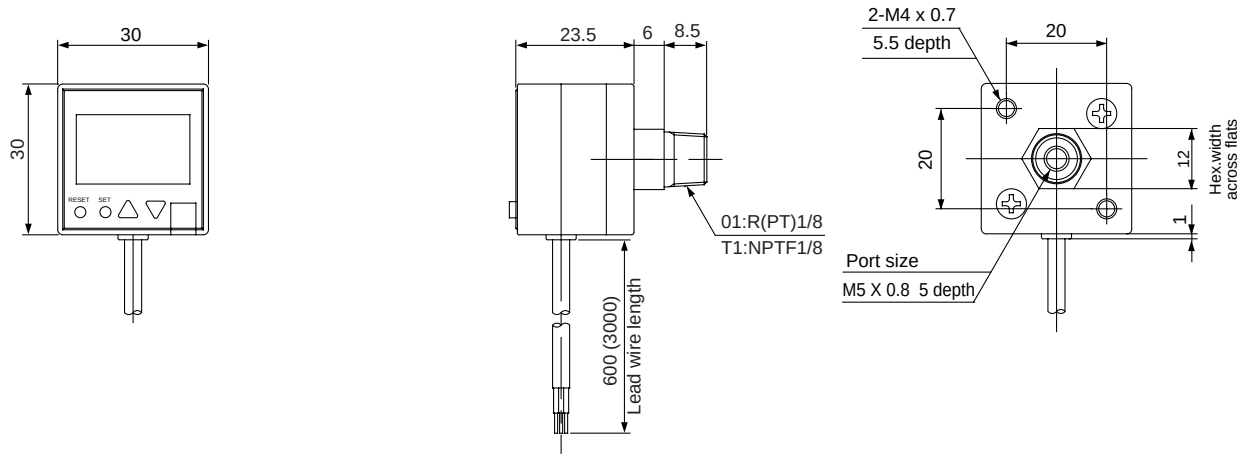
-65
PNP Open Collector

Max.80mA

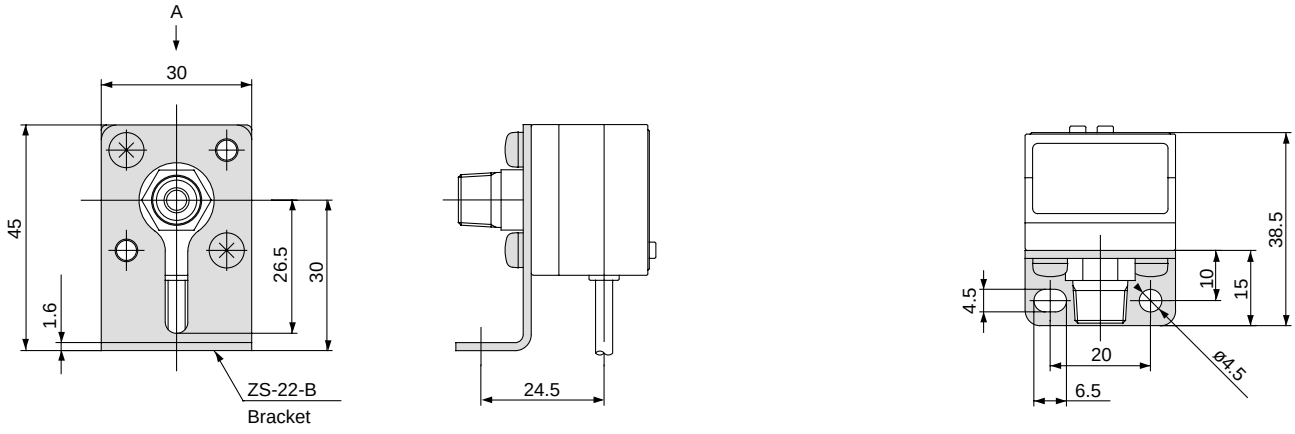


Dimensions

Standard

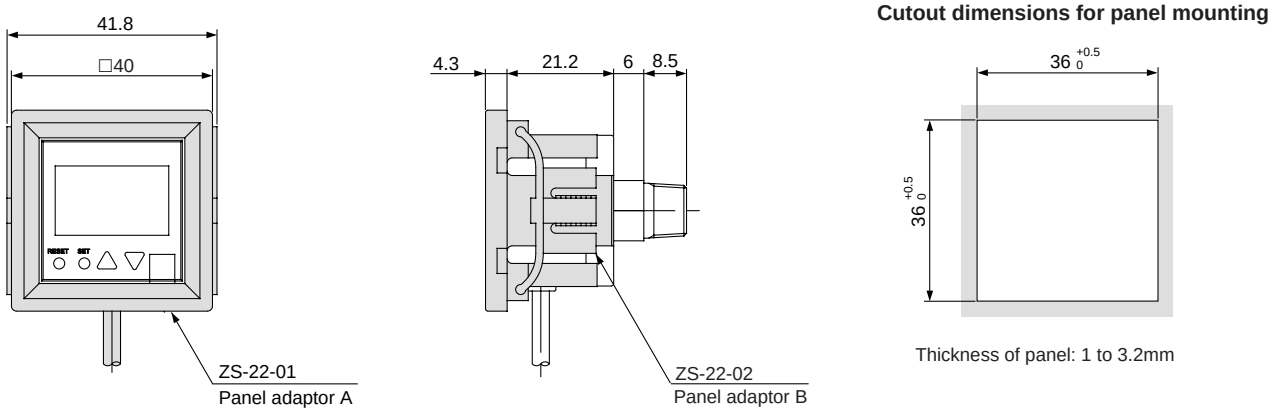


With bracket



View A

Panel mounting



Cutout dimensions for panel mounting

Thickness of panel: 1 to 3.2mm

Dust/Splash Proof (IP66)
Digital Pressure Switch
Series ZSE4□D
(For vacuum)
ISE4□□D
(For positive pressure)

For applications in adverse environments where water/dust are present.

ZSE4E/ISE4E
ZSE4B/ISE4B
ZSE4/ISE4

Dust/Splash proof specification is available on all the standard models.

(Refer to pages of every series for detailed functions.)

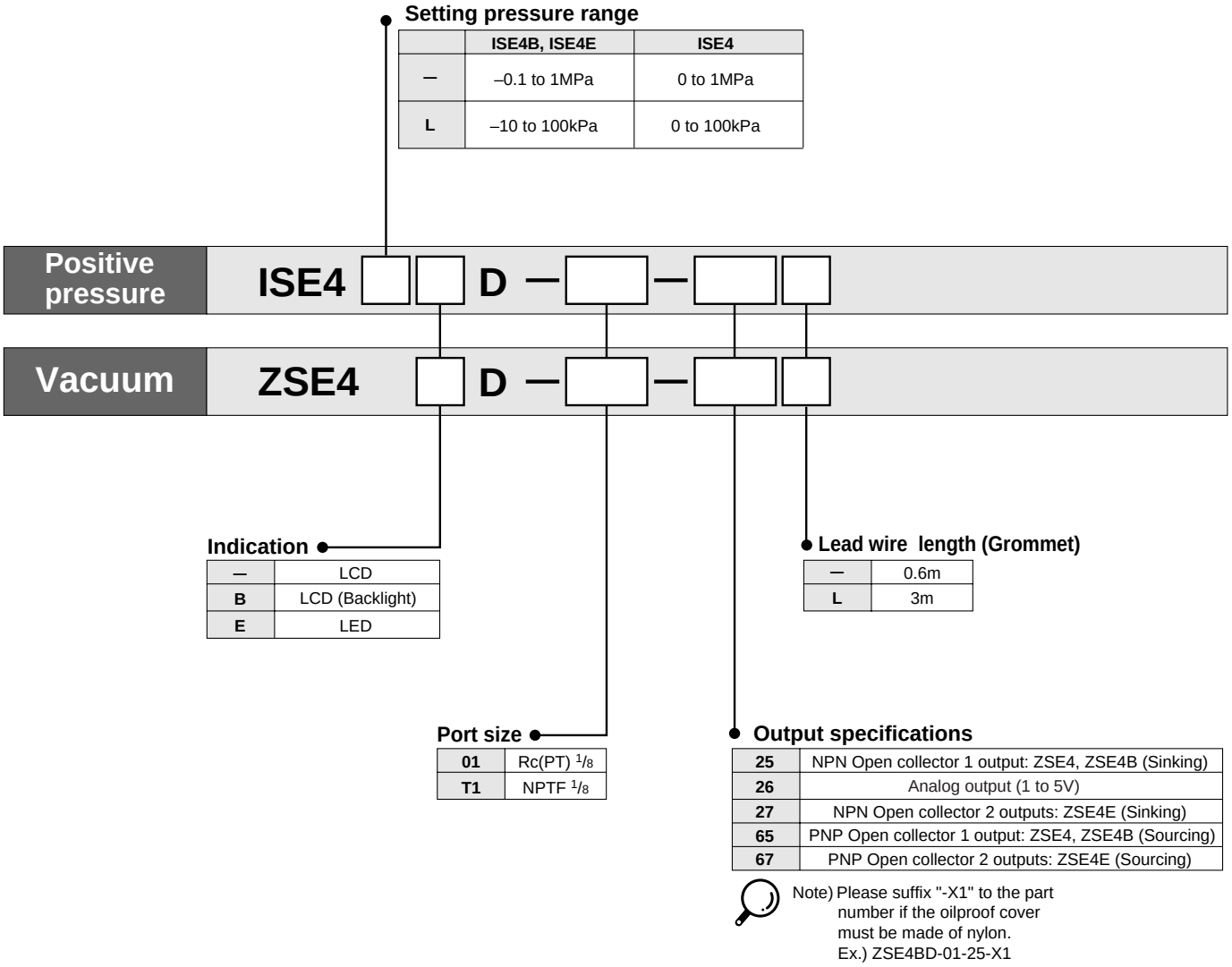
Lightweight: 110g

Resin construction

DIN rail mounting

Easy mounting and removal

How to Order

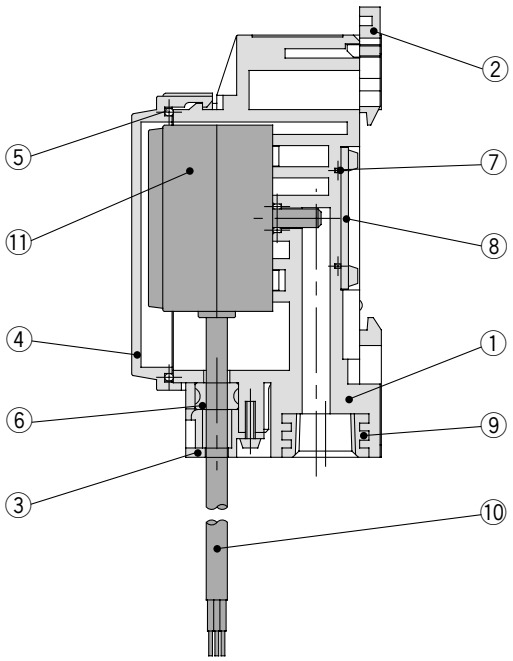


Specifications (Mechanical specifications of optional cover)

Model	ZSE4□D/ISE4□□D
Operating temperature range	0 to 50°C (No condensation)
Vibration resistance	10 to 500Hz Pulse width 1.5mm or acceleration 98 m/s² (smaller vibrations) to X, Y, Z direction (2 hrs)
Shock resistance	980 m/s² to X, Y, Z direction (3 times for each direction)
Lead wire	Gromment oil-resistant vinyl cabtire code: –25, –26, –65 ø3.4 0.2mm² 3core; –27, –67 ø3.5 0.14mm² 4core
Weight	110g (Including 0.6m-long lead wire)
Port size	01: Rc(PT) 1/8 T1: NPTF 1/8
Protective construction	IP66

Refer to the following pages for the details of each series.
- ZSE4/ISE4 Series → P.3.2-17
- ZSE4B/ISE4B Series → P.3.2-11
- ZSE4E/ISE4E Series → P.3.2-3

Construction



Parts List

No.	Description	Material
①	**Body**	PBT
②	**DIN rail stopper**	PBT
③	**Bush stopper**	PBT
④	**Cover A**	PC
⑤	**Gasket A**	NBR
⑥	**Reed bush**	NBR
⑦	**Gasket B**	NBR
⑧	**Cover B**	SECC
⑨	**Insert nut**	A2011
⑩	**Lead wire**	PVC(Vinyl sheath)
⑪	**Digital pressure switch (4□type)**	—

⚠ Precautions

Be sure to read before handling. Refer to p.0-26 and 0-27 for Safety Instructions and common precautions on the products mentioned in this catalog and refer to p.3.0-7 to 3.0-9 for precautions on every series.

Selection

⚠Caution

① If the unit is to be used in an area where it will be exposed to oil based liquids, please order the "X1" option. (Made to Order)

Piping

⚠Caution

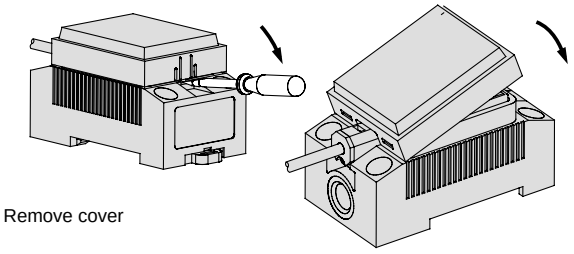
① If this product is to be applied in an area where water and dust might enter the atmospheric pressure port, please attach a section of ø4 mm tubing to the port nipple and route the other end to an area where water and dust can not enter the tubing.

Installation

⚠ Caution

①Apply cover.

Hook the cover on the projection parts of the body and push down as shown below. Be careful not to twist the gasket at that time.
To remove the cover, lift the hook of the cover with a screw driver.

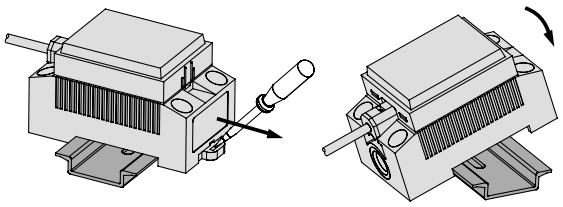


Remove cover

Apply cover

②Mounting on DIN rail

As illustrated below, hook the nail located on the bottom of the body on the DIN rail and press down in the direction of the arrow. To remove from the DIN rail lift the switch up with a bladed screw driver etc. in the direction of arrow.



Removing from DIN rail

Mounting on DIN rail

Recommended DIN rail: OMRON, PFP-(50)N

Protective Construction (IP Equivalent)

Definition: The first digit defines the amount of protection against penetration of solid objects into the housing. The second digit defines the amount of protection against liquids penetrating the housing.

IP 6 6

Degree of Protection against Contact and Entrance of Solid Foreign Bodies

0	No protection
1	Protection against foreign objects > 50mm.
2	Protection against foreign objects > 12mm.
3	Protection against foreign objects > 2.5mm.
4	Protection against foreign objects > 1.0mm.
5	Protection against harmful deposits of dust.
6	Protection against penetration of dust.

Degree of Protection against Ingress of Liquid

0	No protection	—
1	Protection against drops of condensed water.	Drip proof 1
2	Protection against drops of liquid when housing is tilted to 15° from vertical.	Drip proof 2
3	Protection against rain < 60° from vertical.	Splash proof
4	Protection against splashing.	Spray proof
5	Protection against water jets.	Jet proof
6	Protection against conditions on ships' decks. Water from heavy seas will not enter.	Water proof
7	Protection against immersion in water. Water will not enter under stated conditions of pressure and time.	Water tight
8	Protection against indefinite immersion in water under a specified pressure.	Under water

Dimensions